# The American City

MAY 1953

Water-works officials and engineers the nation over will have an opportunity to inspect this Quinlan Pumping Station, which brings water from Lake Michigan to the City of Grand Rapids, host to the American Water Works Association, meeting May 10 to 15.

# Modernizing an approach to Wisconsin's State Capitol

Laying a new Texaco Sheet Asphalt wearing surface over the old pavement on West Washington Avenue, one of the principal traffic arteries of Madison, Wisc. and main approach to the Capitol. Payne and Dolan were the contractors.

The paving machine in the above photograph is placing a plant-mixed asphalt surface of the Sheet Asphalt type over an old asphalt pavement on a main thoroughfare of Madison, Wisc. Laid to a thickness of 2½ inches, this dense, resilient wearing surface forms a close, lasting bond with the existing asphalt pavement. By this method, at a moderate cost per square yard, Madison has obtained a new pavement capable of withstanding heavy, modern traffic for years to come at a low upkeep cost.

American cities began paving with Texaco Asphalt exactly half a century ago. The number of representative cities whose traffic has been served by Sheet Asphalt, Asphaltic Concrete, Asphalt Macadam or one of the other types of Texaco Asphalt construction, totals well over 1500. Many of these cities have paved more than 500,000 square yards of their streets over the years with one or more of these types of construction.

Your city's streets may call for a heavy-duty pavement, a low-cost surface for light traffic, or an improvement somewhere between these two in durability and cost. To help municipal officials choose the type of construction best suited to their requirements, we have prepared a pair of booklets which contain helpful information on the various types of Texaco Asphalt surfacing recommended for city streets. You can obtain copies of these publications without obligation by writing our nearest office.

The TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO

REG. T. M.

# TEXACO ASPHALT

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# The American City


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# "What will the telephone be like when I grow up?"

It's hard to say, young fellow, but you can be sure there are great things ahead.

Today we telephone from moving automobiles, trains, airplanes and ships far out at sea. And radio microwaves beam telephone calls and television programs from tower to tower across the country.

The day is coming when you will be able to reach any telephone in the country simply by dialing a number.

Perhaps some day in the future you may just speak the number into the transmitter and get your party automatically.

**BELL TELEPHONE SYSTEM**

*The Best Possible Service at the Lowest Possible Cost*

# Our Municipal Notebook

## The Cover Picture

GRAND RAPIDS, MICH., host to America's water-works officials and engineers from May 10 to 15, during the American Water Works Association annual meeting, gets its water from Lake Michigan. Our cover illustration shows the city's Quinlan pumping station on the lakeshore. The pumping station is 30 miles from Grand Rapids.

The Quinlan pumping station delivers the water to the city's filter plant through a 46-inch reinforced steel and concrete pipeline. The station is equipped with five pumps whose capacities range from 17 to 36 mgd (million gallons daily). The station has a maximum output of 60 mgd through a dual pump and booster station arrangement.

At the filter plant the water receives alum and chlorine, with fluoride added as a dental-health measure. The treated water flows by gravity to the Coldbrook booster station, a distance of about one-half mile, where it is pumped into the distribution mains of the water system.

The responsibility for water supply is under the supervision of Charles W. Darling, Public Service Director, for Grand Rapids.

## Medical Benefits for City And County Employees

EIGHTY-EIGHT CITIES and counties in 24 states pay from 25% up to 100% of the cost of the hospitalization and surgical insurance for their employees, reports the *Civil Service Assembly*.

Twenty-five of the 88 cities and counties pay 100% of the cost of hospitalization and surgical insurance for employees. Fifty cities pay between 50% and 70% for health insurance costs while only six cities pay 40% or less of the cost.

## New Course for Prospective City Managers

PROSPECTIVE city managers will be able to enroll in a new course to be offered next September by Cornell University, at Ithaca, N. Y., leading to a master's degree in public administration. More than half the time in the two-year course will be devoted to business and public administration courses. The remaining time will allow students to concentrate in individual fields such as stream pollution, law of local government, housing, zoning principles, and regional planning.

Any college graduate may apply for admission, but preference will be given to those who have studied engineering, economics, government, or business administration.

The announcement noted that the council-manager system is the youngest form of city government, and the International City Managers' Association reports a trend toward hiring city managers with professional training either in graduate schools or in work under city managers. Professor Albert M. Hillhouse of the graduate School of Business and Public Administration will direct the course. Professor Hillhouse points out that a broad technical training is needed to manage the complex affairs of a modern city.

## Parks, Parking Lots, and "Beasts of the Chase"

AN OLD definition with a new meaning enlivened a recent talk by Harry T. Thompson, Associate Superintendent of National Capital Parks. Speaking at the annual meeting, at New Orleans, of the American Planning and Civic Association, Mr. Thompson's theme was "Protection of Local Parks and Parkways."

Consulting Webster's International Dictionary, the speaker had discovered that—based on ancient English law—a park is "an enclosed piece of ground stocked with beasts of the chase." But, said Mr. Thompson, "if you wish to be more modern, your dictionary will then tell you that a park is 'any place where vehicles such as automobiles are assembled.' In either case the definition seems quite apropos, for automobiles and beasts of the chase are in this day and age almost synonymous."

Mr. Thompson's talk was a lively and forthright plea for the preservation and increase of scenic parks and other areas for rest and recreation, and for not subordinating such needs to the increasing demands for automobile parking areas.

## Filmstrip on Swimming Pool Sanitation

SANITARIANS and others interested in desirable swimming-pool characteristics and operational procedures may obtain a new filmstrip on swimming-pool sanitation, through their State Health Department, on free indefinite loan. The filmstrip, F-133, is available from the Communicable Disease Center, Public Health Service of the Federal Security Agency, 50 Seventh St. NE., Atlanta 5, Ga. The film delineates some of the physical characteristics and the operating procedures basic to swimming-pool sanitation.

## Multiple-Dwelling Code Issued for Review

THE NEW YORK STATE Building Code Commission issued on April 6 a review edition of its proposed multiple-dwelling code, applicable to apartment houses, hotels, and other buildings used for multiple-residence purposes.

Invitations have been mailed to

## The American City Quiz

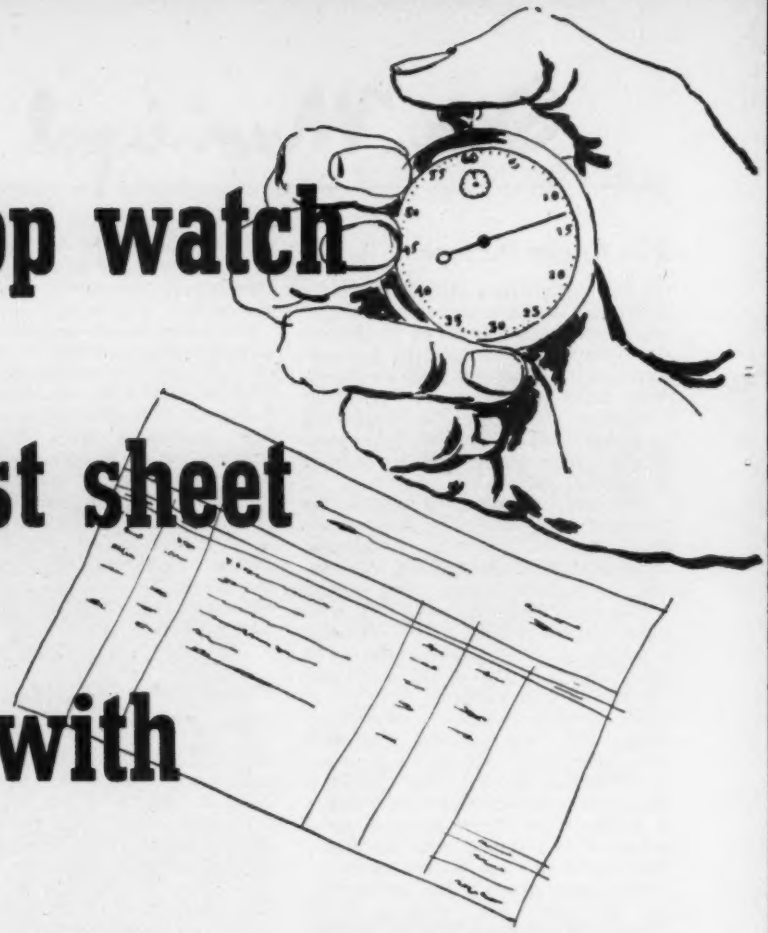
### Match Wits with the Experts

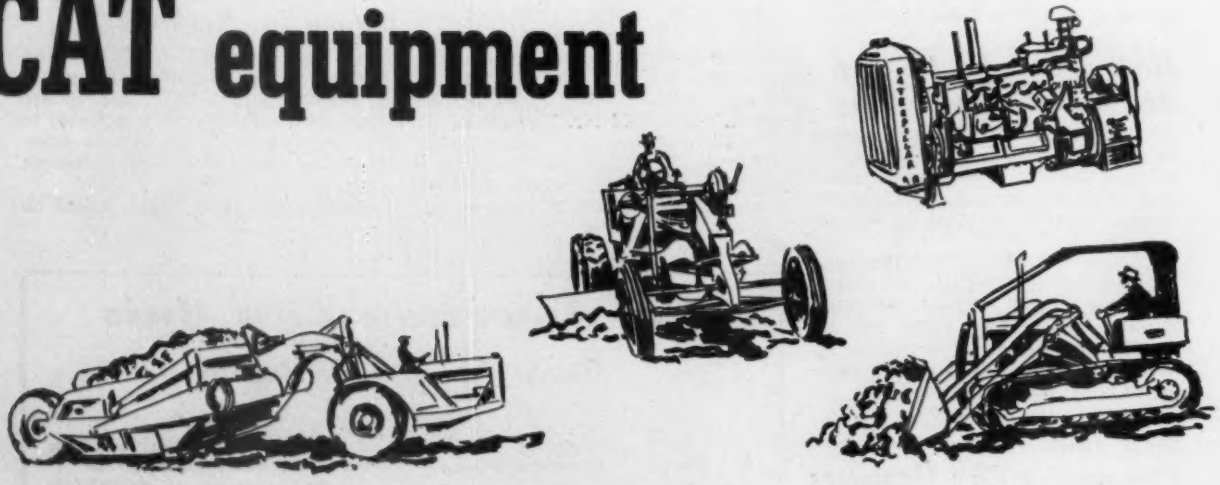
QUESTIONS

1. *What benefits can be realized if a street-lighting system uses mercury-vapor lighting?*
2. *What are some typical earnings that a city can realize from the use of parking meters?*
3. *What are typical operating costs for the large, gas-fueled diesel engines often used in municipal power plants?*
4. *When a water department purchases pumps, how important is the low bid in comparison with other pump factors?*
5. *Is there a practical way to stabilize streets that have received dust-laying asphalt surface treatments?*
6. *What reduction in peak loads can a water works expect by an effective program of lawn-sprinkling regulation?*
7. *How can one stop corrosion in a steel water main?*
8. *What is a practical arrangement that will allow private refuse collectors to use a city's sanitary landfill?*
9. *Are there any water-pipe sizes that cannot be cleaned and lined with equipment presently available?*
10. *What type of equipment should the small municipality use to keep its streets in good condition?*

(Answers on page 9)

# Use your stop watch and your cost sheet on your job with CAT* equipment





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543 associations to set up review committees to analyze the proposed regulations and transmit their recommendations to the Commission. To promote public discussion, conferences are being held by the Commission in 13 cities throughout the state.

The proposed multiple-dwelling code, like its predecessor, the one- and two-family-dwelling code, is a performance-type code. It is arranged in five parts — general provisions, space requirements, structural requirements, fire-protection requirements, and equipment requirements.

The provisions of the proposed code, insofar as practicable, are composed in terms of performance objectives, making adequate performance the test of acceptability of materials and techniques, rather than rigidly specifying methods of compliance.

For copies of the proposed code apply to State Building Code Commission, 1740 Broadway, New York 19, N. Y.

## *Tax Plan Proposed To Modernize Highways*

THE DEPARTMENT OF HIGHWAYS of the State of Ohio announces that one of its staff engineers, D. F. Pancoast, has devised a tax plan which he believes could raise the revenue needed to modernize the nation's highways and at the same time permit a reduction in passenger-car taxes.

Mr. Pancoast proposes the application of an "incremental method" of relating a vehicle's taxes to each increment of road cost for which its mileage and weight make it responsible. The plan advocates that "axle-miles"—rather than the conventional ton-miles or vehicle-miles—be used to measure road usage, on the grounds that the number of applications of each axle is the most accurate gauge of the interaction between a vehicle and a pavement.

The commonest truck combination in Ohio—a 7,000- to 8,000-pound tractor and a 7,000- to 8,000-pound semitrailer (both empty weight)—would, under Mr. Pancoast's plan, be taxed $704.18 and $249.48 respectively, or a total of $953.66 annually. Such a combination now pays approximately $680 in Ohio in road-user taxes.

Mr. Pancoast believes that this plan is the soundest for the equitable allocation of highway costs among highway users.

Mr. Pancoast presented his plan at the 32nd Annual Meeting of the Highway Research Board at The National Academy of Sciences in Washington, D. C.

## *Cleveland's Fund for Support of Nonprofit Cultural Organizations*

*To the Editor of* THE AMERICAN CITY:

The article on "Cultural Assets of the Modern City" in your April issue, suggests to me that your readers may be interested to know about the recent organization in Cleveland of a foundation for the support of the recreational arts.

The fund is an open-end trust at the National City Bank of Cleveland, one of the corporate trustees of the Cleveland Foundation. The fund is established under the Cleveland Foundation and is unique for the purpose involved. The initiator of the fund made a personal gift and his corporation made an additional gift for a total of $10,000. At present these gifts constitute the existing assets of the trust.

It is the original donor's hope that many other individuals, corporations, firms, etc., that have not previously supported these cultural organizations will make contributions to the fund. The initiator is planning to solicit a considerable number of these corporations and business firms. It is hoped that under this open-end trust, to be administered by the Cleveland Foundation for the primary benefit of six institutions—the Cleveland Museum of Art, the Cleveland Museum of Natural History, the Cleveland Zoo, the Garden Center, the Musical Arts Association, and the Play House—additional support will be produced for these admirable institutions.

The six initial beneficiary organizations of the Cleveland Recreational Arts Fund were selected largely because of their outstanding services to children of the city, but the plan for the fund does not preclude aid ultimately to other institutions of similar character which operate, likewise, for the benefit of all citizens without discrimination.

LEYTON E. CARTER
*Director*
*The Cleveland Foundation*

**"But for a really accurate forecast of municipal growth, we always consult him."**

# Steel-Service Team

## In there - - Pushing

Now more than ever the help of an experienced steel-service organization is especially valuable. That's why it may well pay to get in touch with the nearest Ryerson office or plant.

Not that we can *always* furnish the steel you need—much as we would like to, and hard as we try. But, with controls relaxing a little and a few steel products coming into better supply, there are more opportunities for experience and ingenuity to take over. And experience, ingenuity—and the will to help are never in short supply at Ryerson.

Your nearby Ryerson plant is staffed with specialists on carbon, alloy and stainless steels who are always ready to work with you. Often they can suggest practical alternates when the steel you need is not available. And back of the Ryerson plant nearest you stand the resources of fourteen other Ryerson plants, making up the nation's largest steel-service organization. So when a kind or size is not on hand locally, we may be able to ship it from another plant.

With all Ryerson plants cooperating, and with Ryerson specialists helping to make the most of available steel, we are usually able to maintain service in spite of the current situation. So we suggest that you check with us regularly for all your steel requirements . . . There is nothing too difficult when it comes to working with a Ryerson customer.

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## *Armed Forces Policy On Recreation*

IN A DIRECTIVE recently sent to the Army, Navy, Coast Guard, and Air Force by the Department of Defense, the value of recreation for the creation and maintenance of high morale essential to the military effectiveness of the Armed Forces and to the efficiency of civilian employees is clearly stated.

It is the policy of the Department of Defense [the directive states] to promote and to provide a well-rounded morale, welfare and recreational program to insure the mental and practical well-being of its personnel. Adequate free-time facilities should be provided, operated and maintained through financial support tendered by the Federal Government. . . .

Curtailment of morale, welfare and recreational funds can have serious implications upon enlistment and particularly reenlistment rates, thus creating additional training costs which could more than counter-balance the savings effected through failure to construct adequate basic facilities.

## *City Manager Urges Federal Department for Local Government Affairs*

A SUGGESTION made with various modifications during the last 40 years has been renewed by City Manager Thomas L. Lemon, of Sanford, Fla., in a radio address over Station WTRR. This is that there be set up in the federal government a "Department for Local Government Affairs" or a "Permanent Committee to Coordinate Intergovernmental Relations."

One of the important functions that such an agency might perform, Mr. Lemon suggests, is to plan a program of municipal improvement that would take up the slack in employment if a depression should threaten. "Critically needed improvements and facilities, running into the millions of dollars in cost, could be started and completed in a program which would not be based on doles or give-away ideas."

## *National Health Council Forum on Advancing the Nation's Health*

PROFESSIONAL GROUPS and voluntary and governmental agencies had 336 representatives participating in a forum on "Advancing the Nation's Health," which featured the 33rd Annual Meeting of the National Health Council, March 18-20, at the Hotel Roosevelt, New York.

The forum was launched with a panel discussion of the recently published report of the Commission on the Health Needs of the Nation. Nine former Commission members participated, including the chairman, Paul B. Magnuson, M.D. Five groups simultaneously discussed health personnel, health facilities, organization of health services, payment for personal health services, and health research.

E. Dwight Barnett, M.D., director of the Institute of Administrative Medicine at Columbia University, reported that the group focusing on health facilities agreed that, "The establishment of effective local and state health councils coordinated with the activities of the National Health Council is the best method for providing the firmest base for grass-roots planning for health facilities."

Stenotyped records of all forum discussions were made and proceedings will soon be available from the National Health Council, 1790 Broadway, New York 19, N. Y.

## *The American City Quiz*

**ANSWERS TO QUESTIONS ON PAGE 5**

1. According to J. H. Burson of the Westinghouse Electric Corporation, mercury-vapor lights will give you 2½ times the light output per watt input that incandescent lamps do. They average 5,000 hours of service and will cut labor costs by one-third.

2. Z. A. Faulkner, Traffic Engineer, Evanston, Ill., reports that parking meters in this city average 29.45 cents per day, gross, or 23.10 cents per day net when located on the street. If they are located in a parking lot, the gross income per meter was 43.20 cents per meter, and 20.25 cents per meter, net, on one parking lot. On another smaller lot, the gross was 19.22 cents and the net was 11.05 cents. The city has about 1,500 Magee-Hale Park-O-Meters in use.

3. Carthage, Mo., operates two large Nordberg, two-cycle diesels that can use either diesel fuel or natural gas. These produce electricity for a fuel cost of $0.00226 per kwhr. The gas cost is $0.16 per 1,000 cubic feet and the oil cost $0.085 per gallon. The gas has a BTU content of 1,000 per cubic foot.

4. According to L. R. Howson, of Alvord, Burdick & Howson, Chicago consulting engineers, pump efficiency is much more important than first cost. A purchaser can pay 10% to 15% more for a centrifugal pump initially for each 1% increase in efficiency that the manufacturer will guarantee. First costs rarely vary more than 10% to 15% between pumps of similar characteristics. Efficiencies often vary as much as 5%.

5. Ray E. Havens, City Engineer, Kokomo, Ind., improves these streets at a cost of only 45 cents per square yard by using a Pulvimixer and adding asphalt where needed to produce a good, dense mix. In some cases he added stone in small sizes to lighten the fine soil. After rolling the base, he added a surface treatment by applying MC-4 cutback asphalt at the rate of 0.3 gallon per square yard and covering it with 20 pounds of pea gravel or stone per square yard.

6. Milwaukee, Wis., placed a restriction on lawn sprinkling, effective from June 1 to September 15, that has reduced peak water use to about what it was 15 years ago. During this same period, average daily use has increased about 50%. The Milwaukee regulation prohibits residents on south and west sides of the streets from sprinkling their lawns between 5 and 8 p.m. on Mondays, Wednesdays, and Fridays. Residents on the north and east sides of the streets have the same restriction on Tuesdays, Thursdays, and Saturdays.

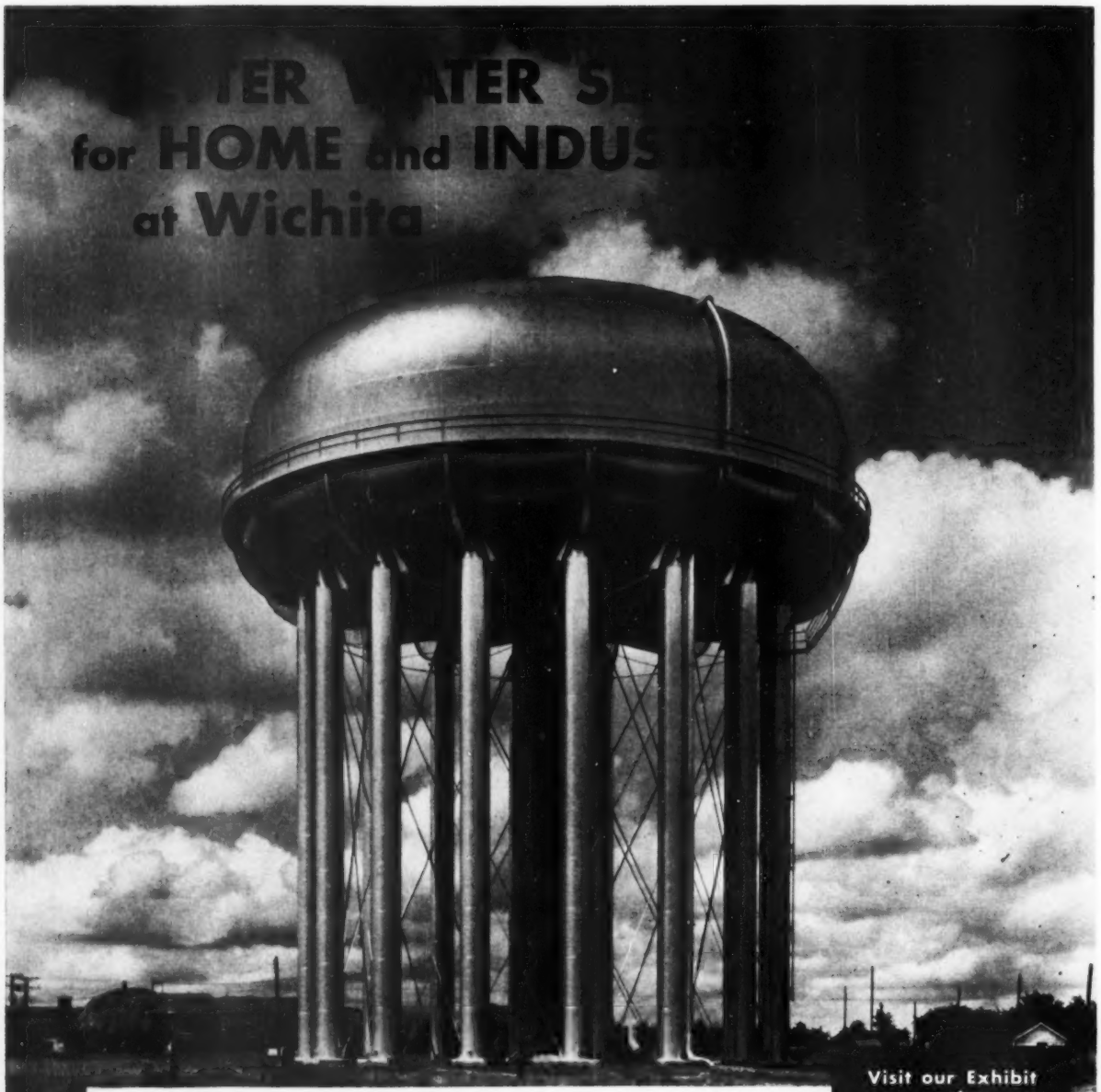
7. In Anacortes, Wash., cathodic protection has checked corrosion in a 2,500-foot steel pipeline 24 inches in diameter. This line passes through a salt marsh and suffered an average of 30 to 40 leaks per year. A Harco Corporation cathodic protection installation has cut this leakage to less than 5 pinhole leaks per year.

8. Knox County, Tenn., has opened and is operating a sanitary landfill that is used by private refuse collectors. The county charges the collectors 25 cents per month per family that they serve, thus eliminating weighing-in stations. The fill is operated by a TD-14A International crawler tractor with a Drott Bullclam attachment.

9. Today virtually any pipe normally used in water transmission and distribution can be lined with equipment now available. Sizes up to 14 inches in diameter are lined by the Tate Process. Sizes 16 inches and larger are lined by the Centriline method. At one time the 16-inch through 22-inch range could not be reached by either method, but the Centriline Corporation now has equipment to serve in these diameters. Since the development of this equipment in 1950, approximately 250,000 feet of pipe of these sizes have been lined by the new equipment. A typical job was that of South Pasadena, Calif., where 7,000 feet of pipe, 16 inches in diameter, were lined at a cost of approximately $3.50 per foot. This included cleaning, performed by the National Water Main Cleaning Company.

10. Edmonds, Wash. (population 2,000), finds that a Huber Maintainer with a high-lift loader attachment is a practical solution to this problem. This unit can maintain the street, lift manhole covers, and handle pipe, as well as perform many other tasks of loading and grading and clearing snow.

***Send in suggested questions and answers on municipal topics for use in this feature. A small payment will be made by THE AMERICAN CITY for each question accepted.***




In addition to the Foreman and the crew who erected the 2,000,000-gal. Horton radial-cone bottom elevated tank for the Wichita Water Company at Wichita, Kansas, a Chicago Bridge & Iron Company Field Welding Supervisor was assigned to check the work as it progressed. It was the Welding Supervisor's job to give qualification tests to welders, be sure that welding equipment was operating properly and supervise the cutting and examination of the required number of plugs from welded seams. This extra inspection service is standard procedure on all CB&I jobs.

Write our nearest office for information or quotations on Horton elevated tanks. They are built in standard sizes from 5,000 to 3,000,000 gallons.

Visit our Exhibit at the **AWWA** Conference in Grand Rapids, Mich. May 10th to 15th Booths 98-99

**HORTON**

WELDED STEEL STORAGE TANKS

**CHICAGO BRIDGE & IRON COMPANY**

Plants in Birmingham, Chicago, Salt Lake City, and Greenville, Pa.

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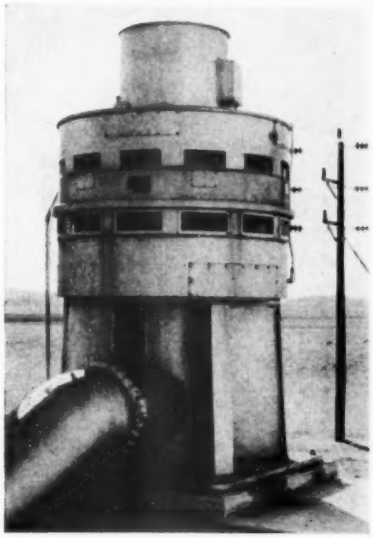
| Birmingham 1 | 1502 North Fiftieth St. | Los Angeles 17 | 1503 General Petroleum Bldg. |
| Boston 10 | 1002—201 Devonshire St. | New York 6 | 3308—165 Broadway Bldg. |
| Chicago 4 | 2127 McCormick Bldg. | Philadelphia 3 | 1616—1700 Walnut Street Bldg. |
| Cleveland 15 | 2236 Midland Bldg. | San Francisco 4 | 1533—200 Bush St. |
| Detroit 26 | 1501 Lafayette Bldg. | Seattle 1 | 1301 Henry Bldg. |
| Havana | 402 Abreu Bldg. | Tulsa 3 | 1625 Hunt Bldg. |

# Water Supply & Treatment

## No Pump House Needed



THE PUMP and the electric motor are both outdoors, exposed to the weather, and working well. The pump, a Peerless high-service unit, can deliver 10,000 gpm (gallons per minute) against a head of 173 pounds per square inch. An Elliott 1,000-hp electric motor drives the pump. The installation was made by the St. Louis Water Company, of University City, Mo., at its Hog Hollow Road pumping and purification plant. The pump delivers water from a clear well to the transmission mains.

The motor is of the outdoor splash-proof type. It has screens over the air openings to prevent the entrance of insects and airborne matter. The motor has a hollow shaft, which makes alignment and adjustment of the pump runner easier. A nonreverse ratchet, unusual in a motor of this size, prevents reverse rotation of the motor.

### Emergency Starting

Although the motor normally starts from a high-capacity power line, it had to be designed to start in an emergency from a 1,000-kw diesel-driven Elliott generator. Under such emergency starting, the current drawn by the motor causes a big drop in generator voltage, so the motor had to be designed to minimize the starting inrush current to prevent excessive voltage drop; but the starting torque, under low-voltage conditions, had to be high. When started from the power line with no appreciable voltage drop, the starting torque is so high that a shock-absorbing arrangement was provided in the nonreverse ratchet.

The outdoor installation saved the expense of a building to house the installation. Controls and the small motor-generator set for excitation are in a nearby building.

## Pipe Cleaning Recovers 1,750,000 Gallons Of Water

AN EXTRA 1,750,000 gallons of water per day is the dividend realized by Mitchell, S. Dak., since it cleaned the main that connects the city's filter plant and the Burr Street pumping station.

This main had not been cleaned in 25 years, according to City Engineer Vinal Francis. The main was badly coated with lime and had a capacity of only 3,000,000 gallons per day. The city occasionally has peak demands reaching as high as 4,000,000 gallons daily. The cleaning has boosted the capacity of the main to 4,750,000 gallons daily.

The Ace Pipe Cleaning Contractors, Inc., of Kansas City, Mo., did the pipe-cleaning work.

## Prominent Water-Works Man Dies

ROLLO KIMBALL BLANCHARD died suddenly on April 25, in Clearwater, Fla., at the age of 67. He is survived by two sons, Kimball and Harry, and a daughter, Betty (Mrs. Robert T. Bower).

Mr. Blanchard was graduated from Cornell University in 1910, with a degree in mechanical engineering. He joined the Weber Pump Company, a subsidiary of the Neptune Meter Company, and in 1912 transferred to the parent company. In 1916 and 1917 he was chief engineer, and from then until 1924, engineering assistant to the president. He was elected vice-president from 1924 to 1952.

In 1943 he was given a Fuller Award, and in 1953 a special citation by the National Board of Directors of the American Water Works Association. Mr. Blanchard was secretary-treasurer of the New York Section of the American Water Works Association, and a member of the National Board of Directors, and secretary of the Fuller Award Society.

## What Air Conditioning Can Do to the Water Works

IF YOU CAN PERSUADE those needing air-conditioning equipment to equip themselves with units designed to conserve water by the use of cooling towers or spray ponds, then you have little need to worry about the air-conditioning load. This is the opinion of Elwood L. Bean, Chief, Water Treatment Section, Philadelphia Department of Water.

Mr. Bean finds that air conditioning will require 0.05 gallons of water per minute per ton of refrigeration if good conservation is practiced, and more, if the water is hard. Without conservation, if the water simply runs through the air conditioner and is then discharged to the sewer, it may then require as much as 2½ gallons per ton of refrigeration. In Philadelphia, without conservation, air conditioning probably would require 141,000,000 gallons per day on the hottest summer day, or 33% of the present water use of the entire city. With conservation, there would be required only 2,800,000 gallons per day, or less than 0.1% of the city's use of water.

To control the excessive use of water, Champaign, Ill., has adopted a list of regulations governing the use of water for air conditioning. These regulations are as follows:

1. It prohibits the use of water directly from the mains as a principal cooling medium.

2. It prohibits the use of water from the mains in all compressor-type refrigeration units having standard rated capacity of 1½ tons of refrigeration or less.

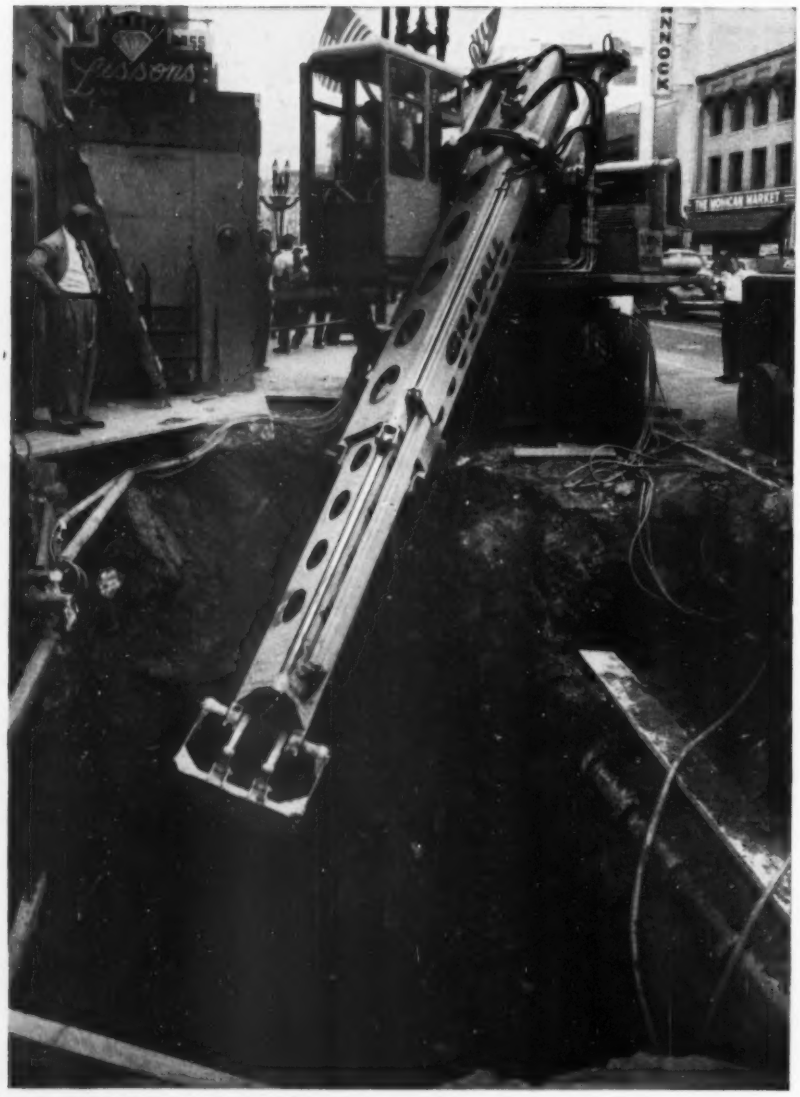
3. It allows the use of compressor-type refrigeration units having standard rated capacity of 1½ to 5 tons of refrigeration if they are equipped with water-cooled condensers using water from the mains, provided that not more than one such unit with such capacity is used as the main source of air conditioning. Standby units will be permitted.

4. It requires all compressor-type units of 5 tons of refrigeration or more to be equipped with evaporative condensers or similar equipment, thus requiring only makeup water from the system.

5. It specifies that if other than compressor types are to be used, the use of water from the mains shall be limited to not more per ton of refrigeration than would be used by compressor types when operated under normal conditions as outlined in (3) and (4).

## The best testimonial for Gradall...

# 48% REPEAT SALES!




*Gradall works in crowded downtown area, digging deep, sheer excavation. Precision tool control permits digging around sewer and utility lines.*

YES, almost *half* the Gradalls sold go to present Gradall owners—contractors, highway departments, municipalities, railroads—people who *proved for themselves* how this multi-purpose machine pays off!

They have proved that a single investment in a Gradall gives them a machine that does the work of many. They tell us the Gradall is usually the first machine on the job, the last one off. It's kept busy on a wide variety of projects—excavating, ripping and loading pavement, grading, backfilling, cleaning tracks and roadbeds, digging and cleaning ditches, and many more—working to hand-finish "specs" *without* hand labor. And after completing one job it's soon ready to tackle the next—with less than five minutes to change attachments.

Owners *know* what a Gradall can do. You, too, can find out how its hydraulic, telescoping arm-action and its many uses can cut costs on *your* operations. Just contact your Gradall Distributor for a field demonstration.

**Gradall Distributors in over 75 principal cities in the United States and Canada**

**Gradall**
DIVISION OF WARNER & SWASEY

**YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY**

# *Street Cleaning & Refuse Disposal*

## Sanitation Boosters

**Victor Hayes, Superintendent of Streets (right), accepts the key for the city's new refuse-collection trucks from Street Commissioner Vincent Miklantsch.**

REFUSE SANITATION in Dickinson, N. D., moved toward higher standards when the city acquired two new covered, compactor-type trucks. The new units have 9-yard Pax-all refuse-loading bodies, made by St. Paul Hydraulic Hoist, Minneapolis, Minn. Each replaces two open bodies because of their increased capacity and collection speed.

Full crew can load into the full width, ¾-yard bucket at once. Automatic loading and compacting cycle is controlled by a single lever located at the rear, curb side of the body. This permits the crew to make the next pickup during the compacting cycle.

## Sanitary Fill Privately Operated

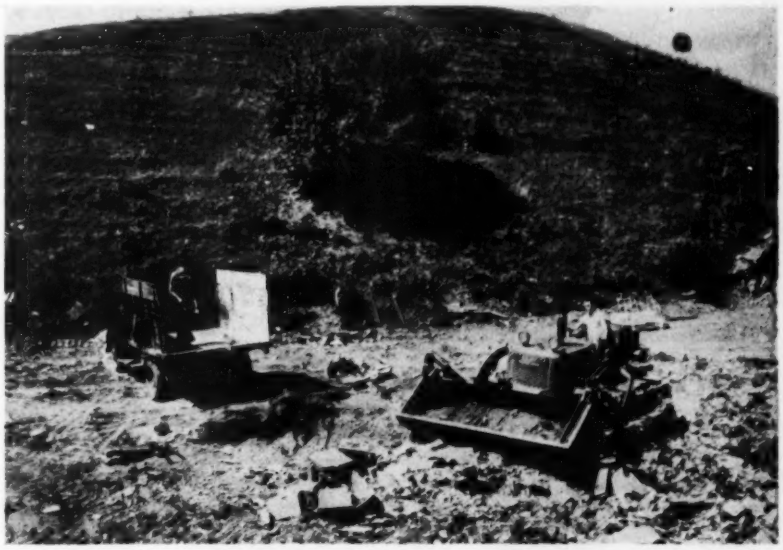
PUBLIC IRRITATION with the open dump provided the stimulus that started the Oneonta, N. Y., sanitary fill, according to Andrew G. Gobel, Sanitary Inspector. Prior to July of last year the city maintained an open dump about two miles outside of the city, and many complained about the rats and smoke and odors from the area.

When it became imperative that a new site or method would have to be employed, Mayor Hughes and Mr. Gobel, together with two representatives of the New York State Department of Health, conferred and agreed that a sanitary landfill, operated by a private contractor, subject to regular inspection and supervision, would be the answer.

The site selected is hilly and almost entirely made up of sand and coarse gravel. The contractor bought an International Tractor with a 2-yard Drott Bullclam shovel and is able to operate the fill with only one man. The tractor compacts the refuse as it is dumped and immediately covers it with six inches of earth. After a substantial area has been filled, the tractor tops off the area with two feet of dirt.

Brush and trees are kept separate and burned when there is an accumulation. No dumping is allowed except when the operator is on the job, which is from 8 a.m. to 5 p.m., Mondays through Fridays and to noon on Saturdays.

The fill operation is turning waste land into valuable property and is benefiting the community from all angles of health and welfare, according to Mr. Gobel.



**Refuse forms a fill for waste land in Oneonta, N. Y. The tractor and Bullclam pack and cover the refuse as it arrives at the fill area.**

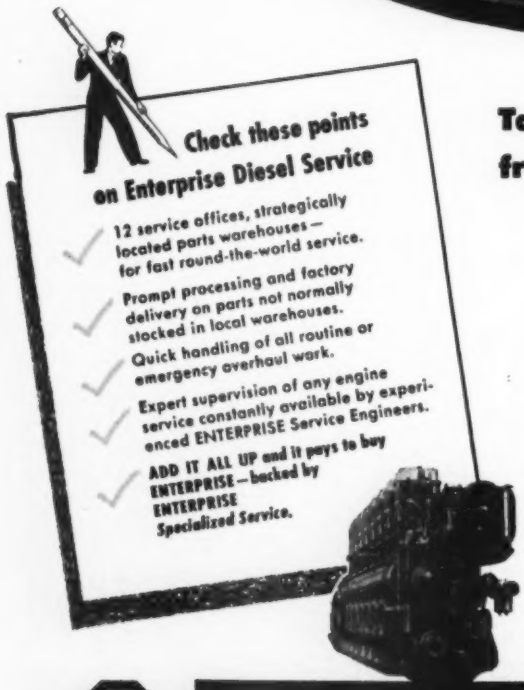
## *Do Incinerator Ash Dumps Pollute Groundwaters?*

THE ANSWER in most cases is no, according to a study made by the University of Southern California at Los Angeles for the California State Water Pollution Control Board, Sacramento, Calif. They certainly are not a major threat and even the small amount of danger can be reduced by efficient incinerator operation and careful location of dumps.

The best policy, according to the report, is to locate the ash dump where it will be subject only to percolating rain water and snow. Under these conditions, the leachings will never bother the ground water unless crevasses in the ground exist. If the incinerators are operated so that they burn thoroughly the organic matter, they will help prevent pollution problems. When the organic matter decomposes, it generates carbon dioxide, and this affects the dissolution of the soluble salts that cause trouble in the groundwater supply.

The report can be obtained from the Documents Section, State Printing Division, 11th and "O" Streets, Sacramento 14, Calif., at a cost of $1, postpaid. Those in California must add 3 cents for state sales tax.

# Parts within Hours
## —from Factory to You


Check these points
on Enterprise Diesel Service
12 service offices, strategically located parts warehouses — for fast round-the-world service.
Prompt processing and factory delivery on parts not normally stocked in local warehouses.
Quick handling of all routine or emergency overhaul work.
Expert supervision of any engine service constantly available by experienced ENTERPRISE Service Engineers.
ADD IT ALL UP and it pays to buy ENTERPRISE—backed by ENTERPRISE Specialized Service.

## Take the case of this "hurry-up" call from Venezuela, for example—

On January 9th at 10:30 A. M. this cable was handed to M. T. Prendergast, ENTERPRISE Manager of Service Parts in San Francisco:

"URGENT AIR EXPRESS TWO FUEL TAPPET AND GUIDE ASSEMBLIES NO. 78153"

It came from T. P. Jiminez, Manager, Fuerza Luz Tuy—power company in Ocumare Del Tuy, Venezuela. Prompt handling saw this rush order airborne by early afternoon, and *delivered to the customer 44 hours and 15 minutes later!*

This is typical of the service you can expect from ENTERPRISE. We know what delivery delays can mean—how costly it can be when engines are idle for need of a part. That's why ENTERPRISE Parts Service is geared to the *customer's* requirements, and why we insist that furnishing prompt and efficient service is every bit as important as building the very finest Diesel engine.

*Write for new descriptive bulletins, or call your nearest Enterprise Diesel Sales Office.*

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# Sewerage & Sewage Treatment

## Cold-Water Interlock Not Required For Philadelphia Grinders

*Ordinance revised to permit kitchen food-waste grinders without interlock or safety cap*

IN PHILADELPHIA, the Department of Licenses and Inspections has now approved all kitchen food-waste grinders tested and approved by the Water Department, including those which were originally prohibited because of the lack of the safety cap and cold-water interlock. This is according to Samuel S. Baxter, Commissioner of Water, in that city.

This ordinance, reported on page 141 of the September issue of TAC, was questioned in a letter that came from A M Rawn, Chief Engineer, County Sanitation Districts of Los Angeles County, Calif. This was published in November, 1952, page 15.

Mr. Rawn, in his letter, pointed out that the grinders are constructed so that even if one were to thrust his hand into the grinder while it is operating he would run little risk of obtaining worse injury than bruised fingers, since rotating knives are not involved. Moreover, the cold-water interlock has not proved necessary in the tens of thousands of grinders now in use in California. He felt that these accessories merely raise the price and thus make them less available to the mass market.

### Many Makes Tested and Approved

Commissioner Baxter expressed his accord with Mr. Rawn's criticism. As soon as the first new sewage-treatment plant went into operation, he sponsored legislation permitting the use of the grinders in Philadelphia. The old Bureau of Engineering, now a part of the Water Department, tested and approved a large number of makes, including those exceptions noted by Mr. Rawn, expressing the opinion that such machines are capable of producing a flow that would not harm the sewer system or the treatment works.

The former and present Charters in Philadelphia divide jurisdiction on sanitary matters. The Water Department has jurisdiction over the sewers and treatment works; and the Department of Licenses and Inspections, formerly the Department of Health, has jurisdiction within private property. The regulation which prohibited garbage grinders without the safety cap and cold-water interlock was made by the former Health Department .

As of September 1952, the restrictions mentioned previously still were in existence on these grinders. However, since then, Commissioner Baxter reports that the Department of Licenses and Inspections has approved all grinders tested and approved by the Department of Water, including those originally prohibited because of the lack of the safety cap and cold-water interlock.

## *Chlorine Residual Indicates Coliform Density*

IF YOU KNOW the coliform density in your-sewage treatment plant, you know how well the plant is meeting sanitation standards. If you know the chlorine residual in the sewage-plant effluent, you have a good indication of the coliform density. However, the ratio between chlorine residual and coliform density cannot be interchanged among plants. These points were brought out by Seth G. Hess, Director and Chief Engineer of the Interstate Sanitation Commission at the recent Silver Anniversary meeting of the Federation of Sewage and Industrial Wastes Associations held recently in New York City. Co-authors of the paper, with Mr. Hess were Alex N. Diachishin and Paul De Falco, Jr., both on the staff of the Commission.

After studying many plant results, Mr. Hess concluded that more bacteria, absolutely and percentage-wise, are killed for an increase of total residual chlorine from ½ to 1 part per million than for an increase from 1 to 1½ parts per million. Susceptible bacteria evidently are killed initially with the hardier bacteria remaining.

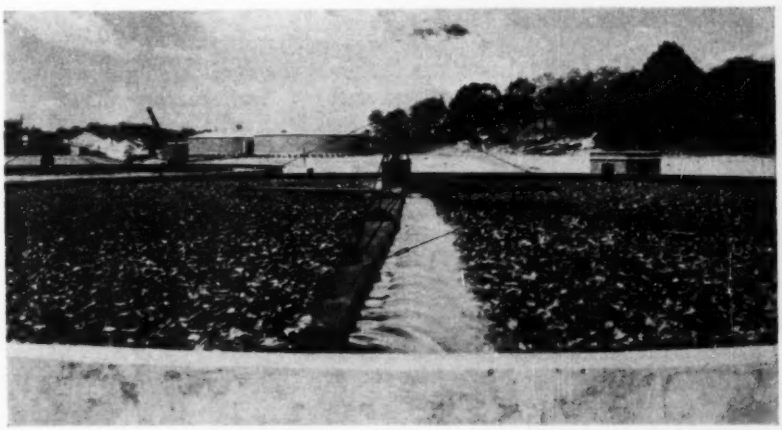
Curves enabling an operator to estimate the chlorine residual required to maintain any given MPN (most probable number) of coliform bacteria can be prepared from plant operations. These must take into account the spread in the actual determinations. Mr. Hess recommended the use of paired curves that would embrace "confidence limits."

## Everybody Benefits

DIVIDENDS came rolling in on every hand when Port Washington, L. I., N. Y., invested in better community sanitation by building a new sewage-treatment plant. It helps keep pollution out of Manhasset Bay, used by many Port Washingtonites for bathing and boating. It was built in what formerly was an old gravel pit, thereby reclaiming an ugly eyesore in the community. Sludge from the plant is being plowed into the barren soil until it is capable of supporting a good growth of vegetation, so that eventually the area will emerge as a community park.

The plant uses single-stage Biofiltration to treat an average raw-sewage flow of 3,000,000 gallons daily. The treatment units include two 70-foot-diameter Dorr S-7 primary clarifiers, two Dorrco distributors, each 100 feet in diameter, two 50-foot S-7 secondary clarifiers and a Dorr Multi-digestion system with 50-foot primary and secondary tanks.

The consulting engineer was C. MacCallum of Port Washington, N. Y.



**No compromise with good purification can be tolerated in the new Port Washington, N. Y., sewage-treatment plant.**

# How Are Natural Rubber Roads Standing Up?

**A Progress Report**

**Since 1949, test roads incorporating natural rubber powder have been laid in 19 states in the U. S. Most of them are in excellent condition today and have required no maintenance. While it is still too early to say conclusively that natural rubber roads are the answer to America's tremendous highway problem, indications are that natural rubber powder added to asphalt can aid materially in stretching our highway dollars, by giving us roads that last longer and require less repair.**

***West Side Highway,*** **Borough of Manhattan, New York City** Laid, summer 1950, a 100' test section of natural rubber-asphalt pavement, with adjacent stretches of other types of rubber paving and a control section without rubber.

**RESULTS:** *After almost three years of traffic, rated at 60,000 vehicles per day, the natural rubber section has withstood the ravages of traffic and climate, and the Borough officials are well pleased with the results.*

***Falls Road,*** **Baltimore, Maryland**

Laid, 1950, a test section with 1¼" binder course and 1" sheet asphalt top course, both containing natural rubber powder.

**RESULTS:** *After nearly three years of main artery traffic, both the natural rubber section and the control section are in first-class condition. The natural rubber section appears darker in color, indicating it has not lost as much of the lighter oil fractions of the asphalt cement through solar radiation.*

***Route 11,*** **Montreal, Canada**

Laid, 1949. Control section (without rubber) was laid twice the thickness of the natural rubber test section. Traffic volume is up to 25,000 vehicles per day, with vehicles using tire chains during most of the winter.

**RESULTS:** *On the control section, chain markings appear to be permanent, and the surface has broken through in several spots. On the natural rubber section, chain indentations, which appear during the winter, are healed over and smoothed out during summer months, leaving no apparent damage to the surface.*

**FREE SPECIFICATIONS AND ASSISTANCE**

The facilities of the Natural Rubber Bureau Research Laboratory are available, without cost, to all highway engineers. If you would like to lay a test strip of natural rubber-asphalt paving, we invite you to write us. Our experienced highway engineers will supply you with free information and technical advice.

**NATURAL RUBBER BUREAU RESEARCH LABORATORY**
**1101 Lee Highway, Rosslyn, Virginia**

## Natural Rubber Bureau

**1631 K Street, N.W.** **Washington 6, D.C.**

# *Street Construction & Maintenance*

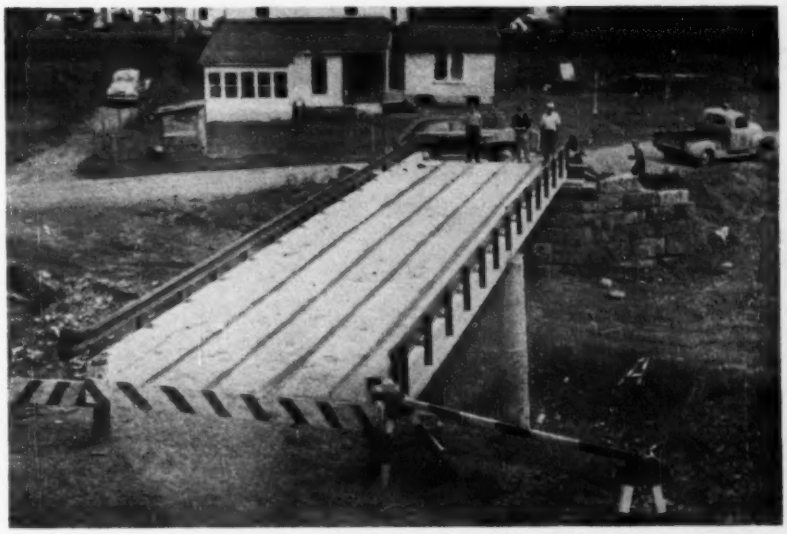
## A Bridge in a Hurry for Rosby's Rock, W. Va.

THE ADVANTAGES of precast concrete components for the fast replacement of old or damaged bridges were demonstrated recently at Rosby's Rock, Marshall County, W. Va.

Last year, a heavily loaded truck crashed through the wood floor of the old bridge that provided the people of Rosby's Rock access to the Moundsville Road.

The need for a new bridge was great. Without it the residents had to follow a difficult route to get to Moundsville, so state highway engineers decided to use precast concrete to build the new bridge in a hurry.

The old bridge was soon dismantled and footings poured for its replacement. State highway engineers contracted with the Wheeling office of Universal Concrete Pipe Company, of Columbus, Ohio, to provide bridge seats and deck slabs. Each piece was precast at a Universal plant, with steel reinforcing. The sections were hauled to Rosby's Rock and fitted together to form twin 36½-foot spans replacing the bridge that collapsed.



**Precast concrete went into this bridge and reduced its erection time substantially.**

### New Bridge Carries Greater Load

By using precast concrete deck slabs instead of building forms and pouring a monolithic bridge at the site, engineers cut the erection time sharply. Now Rosby's Rock residents are driving over the new bridge, which will carry four times the load the old bridge carried.

In new construction, a bridge of this type often can be installed on an average secondary road in less than a week by three men and a crane. Detour time is sharply reduced and costs are cut by as much as 30%.

In bridge reconstruction, the slabs are trucked from the plant to the job and bolted to the foundation after the old deck is ripped out.

Universal precast bridge-deck slabs weigh about 110 pounds per lineal foot, or six tons for a 40-foot section. The mix consists of good-quality aggregates and air-entrained cement. This makes it unnecessary to use bituminous material on the surface.

The mixture is placed in casting forms that contain steel reinforcing, rigidly secured in wire mesh. The concrete is vibrated to insure perfect bond with the steel. The formed slabs are cured for seven days.

Each bridge-deck slab has lifting holes placed at the third points for easy handling. The average installation time from truck to bridge seat is 15 minutes per slab, according to actual experience of the West Virginia Road Commission. This means that a roadway of 24-foot width can be relaid in four hours by a three-man crew.

Use of the slabs for bridge construction is approved by the Bureau of Public Roads at Washington. The slabs are designed for the H-20-S-16 or H-15-S-12 loading of standard specifications for highway bridges of the American Association of State Highway Officials.

## We Build Streets Differently Today

IN McADAM'S DAY, the standard equipment used for construction and maintenance of streets and highways was the following:

A strong, short-handled pick
A small, short-handled one-pound steel hammer
Rakes with 10-inch wooden heads, set with strong iron teeth 2½ inches long
Broad-mouthed shovels for spreading the broken stones.

That was it. But by 1910 we had developed beyond this, and the handbook for town superintendents in New York State had drawings for a split-log "hone" or drag for shaping dirt roads. Then a really modern development came along when someone did away with the split logs and made a hone of railroad rails.

Snow was a problem in 1910. This town superintendent's handbook gives specifications for snow rollers and how they should be used. The rolling of snow was quite a science. Today most towns have modern snow-removal equipment with heated cabs, hydraulic controls, and all the other conveniences. We have equipment to spread cinders or sand.

Needless to say, the retirement of horses has been a boon to this street and highway maintenance. Even the smallest town highway department has at least one truck, and a good many have powered motor graders. Thirty years ago, most maintenance men would have chuckled at the thought of a power motor grader, and called such device undependable.

There are new materials, also, that have become available in the past few years. One item is reflectorized paint or sheeting for traffic signs. Another is the use of air-entraining cements for concrete. This is much more durable and resists scaling caused by ice-control chemicals.

Calcium chloride is certainly not a new material, but its use in street and highway work has developed. Bituminous materials may not have developed over the years but all have been aided considerably by the standardization of the grades of asphalt and tar. Another advance has been in the development of chemicals for weed and brush control. We have really moved ahead in the techniques and methods of construction and maintenance, but we still have plenty of room for improvement.

JAMES W. SPENCER
*Highway Research Engineer*
*Cornell University, Ithaca, N. Y.*

[Extracted from a paper delivered before the annual meeting of the New York Association of Towns.]

# BELLE GLADE GETS VALUE *plus*

# OUT OF THIS BULLDOZER

The Cat* D4 Tractor with No. 4A Bulldozer shown here works every day and all day for the City of Belle Glade, Florida. When it isn't 'dozing around the rock pit, removing overburden or building haul ramps for the trucks, it's spreading fill on the streets or roughing out new right of way.

"General utility tool" is the best way to describe this dependable unit. Junior Greene, tractor operator, says: "Nothing else can come up to this bulldozer for real work except another Cat-built machine."

The tractor and blade are a matched team, perfectly balanced for maximum 'dozing ability. Rugged enough to handle the toughest material, simple and easy to operate, these machines are built to take a beating and stay on the job, week in and week out. They're strangers to down time.

Your Caterpillar Dealer can supply tractors with the widest range of blade types in the industry. And he backs every piece of equipment he sells with prompt, reliable service and a full stock of genuine parts. Ask him for an on-the-job demonstration today.

Caterpillar Tractor Co., Peoria, Illinois.

**CATERPILLAR***

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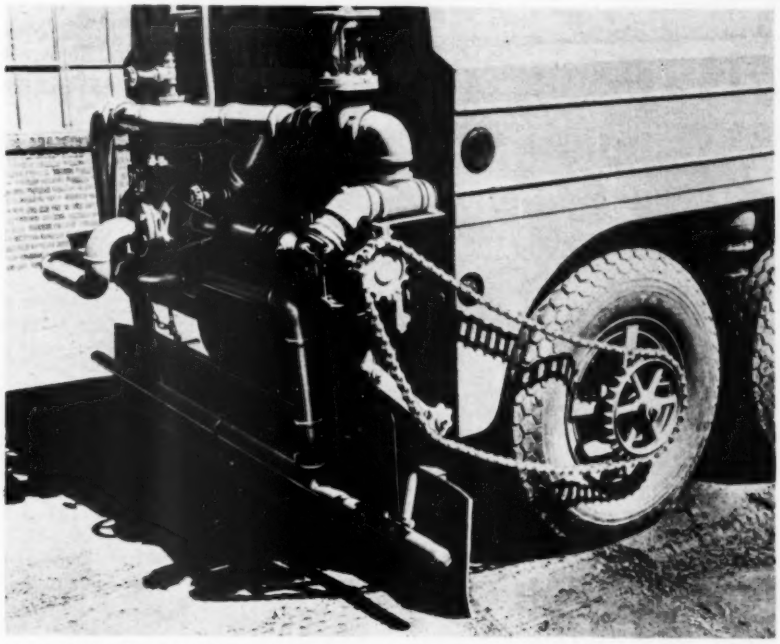
**NAME THE DATE... YOUR DEALER WILL DEMONSTRATE**

# Street Construction & Maintenance



**The installation of calcium chloride spraying apparatus on a Genesee County Road Department truck is shown above. Efficient use of the spray is assured through a sprocket attachment which connects the wheel of the truck and the shaft of the rotor pump, metering the solution and adjusting its flow to the speed of the truck.**

## Dust Laying Made Accurate

A DUST-LAYING application of calcium chloride solution can be applied to unimproved city streets more accurately today. A new type of pump provides the control.

Until recently, a worker had to be stationed at the rear of the tank holding the solution to judge the flow by eye and control it by hand. However, the Dow Chemical Company, one of the largest suppliers of calcium chloride, developed a system of dust control requiring only one worker per truck, and assuring close control of calcium chloride application.

Since a gallon of 35% calcium chloride solution is enough to treat up to 100 square feet of road surface, no pumping is necessary. In fact, pressures over 10 pounds per square inch should be avoided because they cause fogging. The basic requirement, therefore, is a metering system which would automatically adjust the flow of solution to the truck speed.

A type 200-A, bronze-fitted Tri-Rotor Pump made by the Yale & Towne Manufacturing Company met this requirement. The Dow Chemical Company was the first to use a Yale pump, chain-driven by one of the rear wheels of the tank trailer, for this type of metering work.

Since that time, more than 50 Tri-Rotor Pumps have been placed in use for spraying dirt roads in various parts of Michigan.

Typical of these installations is that of the Genesee County Road Department. The bronze-fitted, standard-head, clockwise-rotation Tri-Rotor Pump is mounted on the back of a 2,000-gallon tank trailer. The only modification to this pump is in the shaft, which has 25 inches of extra length, and is supported at the sprocket end by a pillow-block bearing. It is connected to the right-hand trailer wheel by a chain-and-sprocket drive.

The pump should be carefully protected in use. The strainer in the intake line will prevent jamming due to hard objects which may get into the tank. A weak link in the drive chain or a shear pin will prevent damage in case the pump does jam. The pump drive should always be disconnected and the solution bypassed when the trailer is being moved to and from the road to be sprayed. The inside of the pump should be sprayed with a protective coating such as crude oil before handling calcium chloride, and it should be flushed out with clean water after every day in use. With proper protection, the installation will last for at least two years of heavy use.

## *F. V. du Pont Succeeds MacDonald as Public Roads Chief*

FRANCIS V. DU PONT, of Wilmington, Del., has recently been appointed Commissioner of the Bureau of Public Roads by Secretary of Commerce Sinclair Weeks, replacing Thomas H. MacDonald.

Mr. du Pont served as a commissioner of the Delaware State Highway Department from 1922 to 1949, including 23 years as chairman. During his term as chairman, the state inaugurated the dual-highway system and built the Governor Printz Boulevard and other important roadways.

Thomas H. MacDonald, the present Commissioner, is retiring at the end of this month after a distinguished career. He has been in his present post for nearly 34 years, and has directed the spending of more than six billion dollars on roads.

## *Kansas Adopts Raleigh Street Classification*

*To the Editor of* THE AMERICAN CITY:

I am enclosing a clipping which was taken from the Raleigh, N. C., *News and Observer* newspaper, which shows the value of your publication. An idea, when circulated in a magazine of national coverage, may become useful to many people. I am pleased to know that this has happened with the article on Raleigh's Street Classification Program which appeared in THE AMERICAN CITY for August 1952 on pages 90-91.

H. W. STEVENS
*Director of Planning*
*Raleigh, N. C.*

MARCH 20, 1953.

### Local Man's Ideas Basis of Legislation

**City Planning Director Herbert W. Stevens wrote an article last fall for The American City magazine on Raleigh's street classificauon program, which had been worked out by his department and approved by the City Council.**

**City Attorney Paul F. Smith this week received the following letter from City Manager Alan Webster of Concordia, Kansas:**

**"You may be interested to learn that our city attorney and I prepared a bill based on the information contained in the article and it has been presented to the Kansas Legislature . . . It has passed the Senate and will soon come before the House."**

# Let Layne help you

# Plan ahead for water needs

**How Layne Can Help You**—Water needs require long-range plans—for safety, dependability, economy, maintenance of adequate supply. In all such plans, Layne's engineering skill and unique research facilities are at your service.

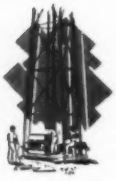
**Exploration** — Layne's unmatched experience and technical ability assure an accurate "pin-pointing" of water-bearing formations before actual drilling begins.

**Test Wells**—Expert crews drill test holes on the site and remove samples to be sent to Layne's central laboratories for study.

**Analyses**—Exhaustive studies are made to determine rate of flow . . . chemical content of water . . . nature of earth formations. Guesswork is removed from your planning.

**Recommendations**—From all data, Layne recommends an overall plan for the best development or expansion of a water system geared to your situation and needs.

**Undivided Responsibility**



**Specify a 100% Layne Well Water System**

In a Layne water system, the name of the world's most experienced water developer stands behind everything—engineering, labor, wells, casings, screens, pumps. One contract assures you the finest in men and materials—and an undivided responsibility that assures your water supply.

*Layne Associate Companies Throughout the World*

Layne

■ For Layne's catalog on Well Water Systems or other information, see your nearest Layne Associate Company or write to Layne & Bowler, Inc., General Offices, Memphis 8, Tenn.

Vertical Turbine Pumps • Water Treatment

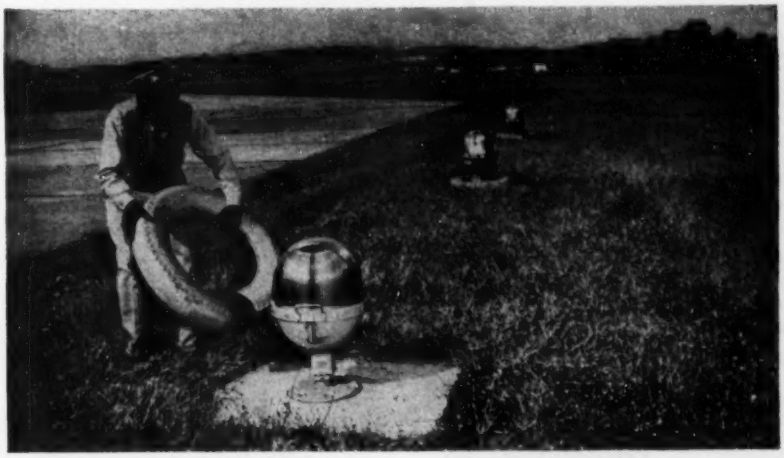
# *Airports & Aviation*

## *Dolly Takes Fire Extinguisher to Planes*

A HEAVY $CO_2$ fire extinguisher can be hauled easily to planes on the flight line with this dolly. Its wheels are tail wheels from Piper Cubs; the other materials used in its construction were found on the scrap pile.

The 12-inch-long axle is made of ½-inch steel tubing to which steel collars have been welded to keep the wheels aligned. Collars and cotter pins on the outer sides of the wheels hold them in place. The handle and pipe support are made from ¾-inch aircraft tubing welded to the axle. A ⅛-inch steel plate, welded at the bottom, is bent to fit the contour of the extinguisher. The dolly carries an ALFite (American LaFrance Foamite Corporation) $CO_2$ extinguisher. It is used at the Birmingham (Ala.) Municipal Airport.

**The extinguisher gets there in a hurry on this dolly.**



**Some rubber-tired insurance against light breakage.**

## *Old Tires Reduce Light Breakage*

BY PLACING old automobile tires around the high-intensity threshold lights located at all runway ends at the Birmingham (Ala.) Municipal Airport, their breakage, which occurs when they are knocked over by planes and grass mowers, has been practically eliminated. Before the tires were used around the lights, 35 were broken in about three years. Since the tires were installed, the damage to the lights has dropped substantially, both in number of broken lights and in the extent of the breakage, according to Henry T. Cross, Director of Aviation.

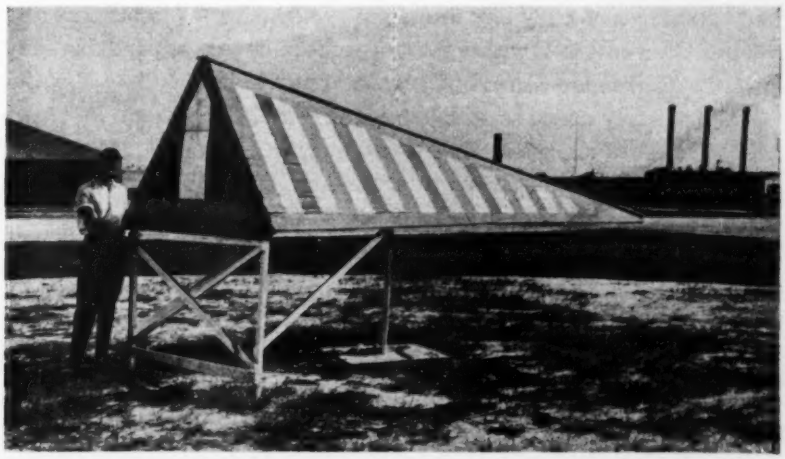
The frangible coupling at the base of each light is intended to break when the light is struck. In this way, damage to the plane and light is minimized. With the tires around the lights, the couplings break, as intended when the lights are struck, but the tires prevent major breakage on the concrete bases. The tires also serve to protect the lights from breakage when grass mowers or cutters are run too close to them. By painting the tires bright yellow, their visibility is increased both day and night.

All three runways at this airport are completely equipped with the high-intensity runway and threshold lights similar to those shown in the picture. All lights were made by the Line Material Company. They make possible safer and easier operation under all-weather conditions.

## Catch the Aviator's Eye With Silver, Yellow, and Orange

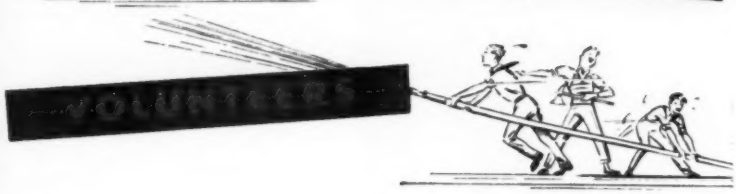
SILVER STRIPES among the yellow and orange, instead of among the gold, as is celebrated in song, or instead of orange, white, and black, do the attention-getting on the tetrahedron-type landing-direction indicator at the Albert Whitted Municipal Airport, at St. Petersburg, Fla. It attracts a great deal more attention and is much easier to spot, according to pilots using the field for the first time.

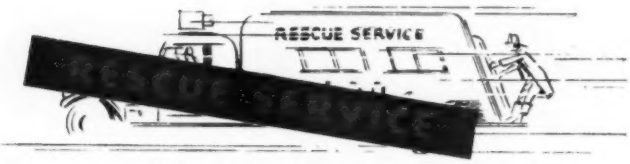
The length of this indicator is about 18 feet—much shorter than the standard CAA wind tetrahedron. It was designed and built by the City of St. Petersburg, using Masonite and plywood.



**A smaller tetrahedron does a better job with a better choice of colors.**

# For the smaller community—
# POSITIVE, INSTANT CONTACT with the




Provide your community—your property owners and your children — with all of the advantages of a big city fire alarm system.

At a cost well within reason, you can have a municipal fire alarm box system that will immediately announce the *location* of a fire.

Best of all, the smaller community can now get the basic fire alarm protection it needs, and extend the system circuit-by-circuit to avoid heavy investment at any one time.

As you know, almost every big fire *starts* as a *small* fire. Prevent delays with a positive, dependable fire alarm box system.

*Keep small fires from becoming big fires — with an adequate fire alarm box system.*

**THE GAMEWELL COMPANY**
**NEWTON UPPER FALLS 64, MASS.**
*In Canada: Northern Electric Co., Ltd., Belleville, Ont.*

**THE BOX IS POSITIVE**
**Reduces Human Error**

# Public Safety

## Burlington, Kans., Fire Department on Land and Neosha River

**Burlington's Volunteer Fire Department—two trucks, two boats, and Secretary Harold Whistler, Chief Otto Tripp, and Assistant Chief and Chairman of Flood Boats Borden Tuley.**

IN 1952 the Volunteer Fire Department of Burlington, Kans. (population 2,300), answered 37 alarms in the city, 10 in the country, and a number of first-aid calls. Local fire loss was $8,106, and $3,570 at the fires outside the city.

These outside responses are more important in a farm area than their number indicates. When our old truck broke down on a return run, our members decided that while they were willing to make country runs without pay a new truck should be provided with which to make them. The farmers subscribed $4,000 in three days, and a 2-ton Chevrolet truck was purchased and lettered "town and country." This truck has a 650-gallon water tank and 500-gpm front-end pump. Its first call was in the last week of January 1953.

The new truck is shown at the left in the background of the photograph, and a Mack truck at the right. First-aid devices include an H & H inhalator and an E. & J. resuscitator. The spectacular items in the photograph are, of course, the two rescue boats. They were obtained from the Sportmarine Company, of Wagoner, Okla., and are powered by Johnson outboard motors.

The need for life boats was emphasized during the flood in July 1951. The good performance by Fiberglas boats used by Army engineers sold the Fire Department on this type. The city bought a 12-foot boat and the department bought a 25-hp Johnson Seahorse motor. The county also bought a boat and a 25-hp Seahorse.

The Burlington Volunteer Fire Department dates back 60 years and 13 of the firemen average 13 years' service. Our First Lieutenant, L. B. Blake, is active after 57 years' service and Captain W. T. Phares after 51 years. Fire Chief Otto Tripp has a mere 16 years to his credit, and the writer 17 years.

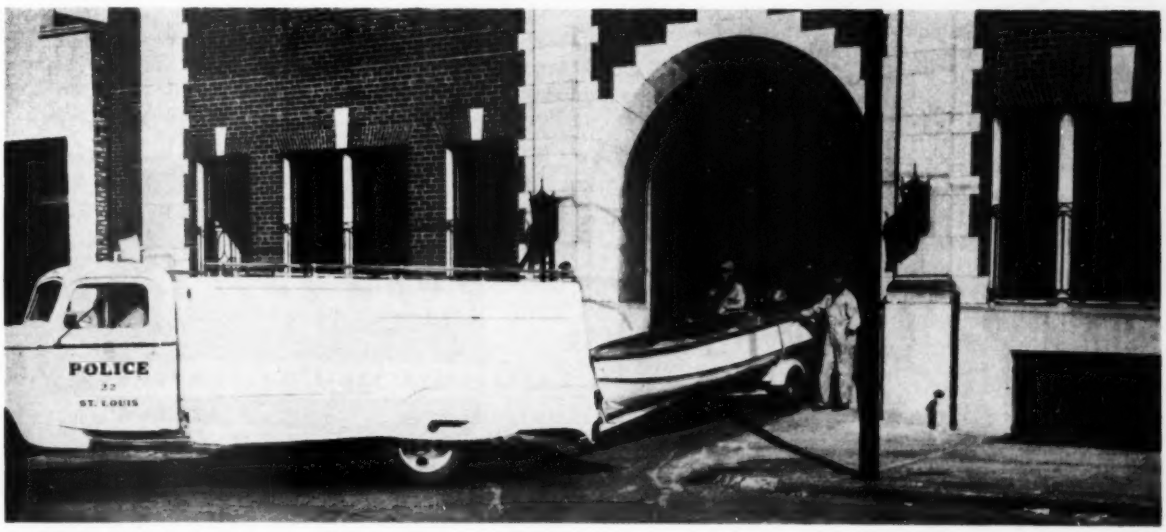
HAROLD WHISTLER
*Secretary*
*Volunteer Fire Department*
*Burlington, Kans.*

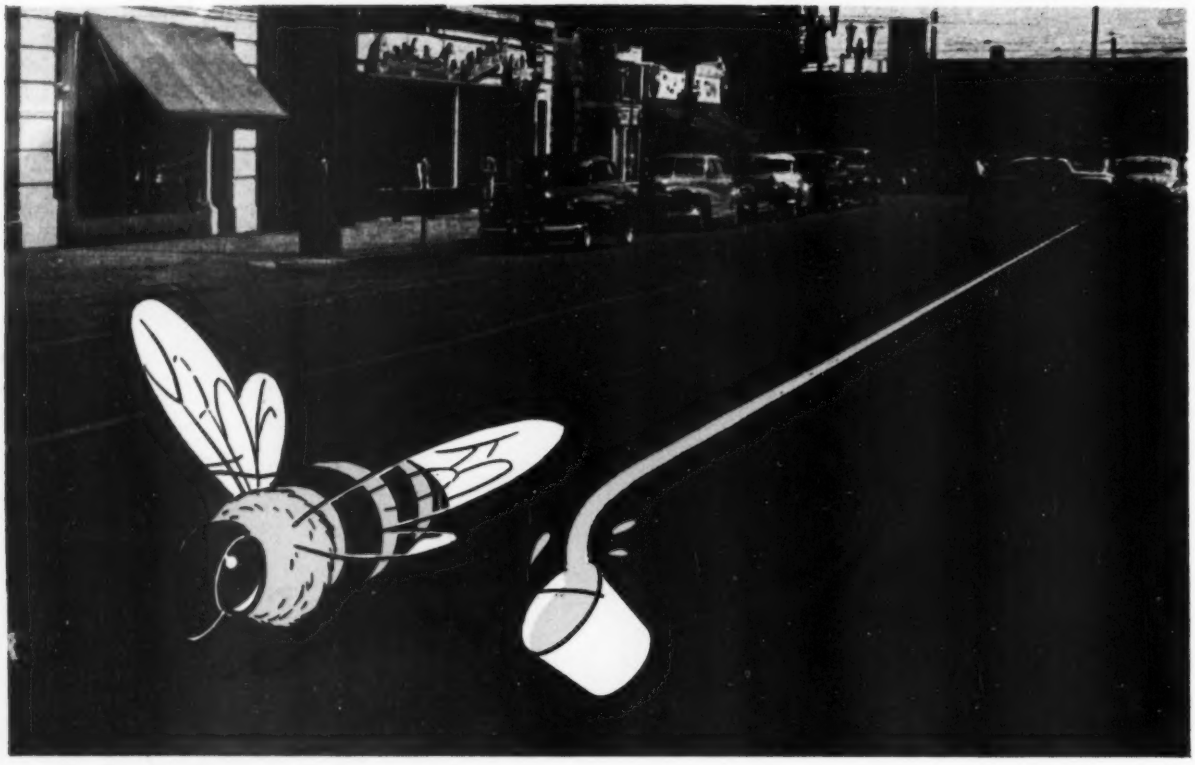
## *St. Louis Police Rescues On the Mississippi*

OUR rescue-operations equipment in the St. Louis Police Department includes a 14-foot Pickeral model boat manufactured by the Dunphy Boat Corp., Oshkosh, Wis., and powered by a Johnson Sea Horse 5-hp outboard motor. It is used in police work involving flood evacuation, rescue, and the removal of floaters from the river.

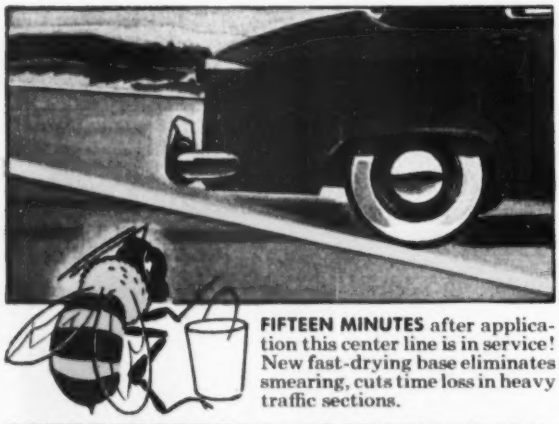
The boat is housed at the Department's main motor garage. Mounted on a Model OB-C Tee-Nee trailer, it is always ready for immediate use. The photograph shows the method of transportation.

JEREMIAH O'CONNELL
*Chief of Police*
*St. Louis, Mo.*





# Yes! BEELINE BRAND Reflective Striping Compound dries three times as fast!



**FIFTEEN MINUTES** after application this center line is in service! New fast-drying base eliminates smearing, cuts time loss in heavy traffic sections.

This new pavement marking compound was created by 3M to fill the need for a *faster drying* material that would stand up under heavy traffic conditions. "BEELINE" Compound dries in *fifteen minutes*, is easy to apply with standard equipment—and costs less than any other pre-mixed (beads and paint) striping compound.

So, for a faster drying compound that meets rigid standards of durability—at the lowest cost—ask your supplier or your 3M Representative for "BEELINE" Compound. The coupon below will bring complete information, without any obligation, of course.

AC-53

**Minnesota Mining & Mfg. Co., St. Paul 6, Minn.**

**Please send complete information on "BEELINE" Reflective Striping Compound.**

**Name**_____

**Address**_____

**City**_____ **Zone**____ **State**_____

PREMIXED BEELINE BRAND REFLECTIVE STRIPING COMPOUND

Made in U.S.A. by **Minnesota Mining & Mfg. Co.**, St. Paul 6, Minn.—also makers of "Scotch" Brand Pressure-Sensitive Tapes, "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-Slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.

# Get What You Want—No Charge!

*Please check the list of interesting free catalogs on this and following pages. To obtain the literature you want write directly to the manufacturers at the addresses given. If you prefer, you may circle the identifying number on this coupon and mail to* THE AMERICAN CITY, 470 *Fourth Ave., New York* 16, *N. Y., and we will see that catalogs are sent to you without expense or obligation* 5/53

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**Name** .....**Postion** .....

**Adress** .....

### The Construction Machine That Does It All

**300** Imagine a machine so versatile that it will handle your excavating, trenching, grading, ditching, and pavement removal jobs! The multi-purpose Gradall Construction Machine does all of these faster and better. In pipe line work alone, it digs the trench, lays the pipe and backfills to complete the job. Learn more by writing GRADALL DIV. of WARNER & SWASEY, CLEVELAND 3, OHIO.

### Pick Up Street Litter Pneumatically

**301** With the new Motorized Scavenger the operator sits in a comfortable chair with an adjustable footrest, and has all the controls within easy reach. A 12-in. tube sucks up all types of rubbish from leaves to bottles and cans, while a self-dumping mechanism deposits the entire load at the dump. Further particulars are available from GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

### Efficient Traffic Control

**302** Looking for an efficient, practical system to analyze traffic conditions? The Denominator enables you to check volume directional flow and type of vehicular movement accurately. One touch of your finger tip records each action. For detailed information, write THE DENOMINATOR CO., INC., DEPT. AC-7, 261 BROADWAY, NEW YORK 7, N. Y.

### Photographs Can Be Duplicated

**303** A new photo-offset plate exposure unit makes it possible for the offset duplicator owner to make professional halftone picture reproducing plates in his own office—in just a few minutes. For further information write A. B. DICK CO., 5700 W. TOUHY AVE., CHICAGO 31, ILL.

### Fewer Police Can Do Better Work Faster With 2-Way Radio

**304** Two days after the new police radio system was placed in operation in the Amarillo Texas, Police Department, a squad car came upon the scene of a hit-and-run accident. While one officer was giving first aid, the second called the station for an ambulance and also gave a description of the runaway car. The dispatcher acknowledged the message and began checking his log to see which squad car was in the area. When he contacted the appropriate police cruiser, he was answered, "okay, Sarge, we have just caught the car." They had heard the original transmission, and in a total of five minutes had apprehended the lawbreakers. This and many other stories of the efficiency of emergency radio appear in the *Motorola Newsgram*. For a copy write MOTOROLA INC., 4545 AUGUSTA BLVD., CHICAGO 51, ILL.

### Mechanics of Pipe-Laying Explained to Workmen

**305** Did you ever notice how most pipe-laying instructions are directed at project engineers rather than at the crews themselves? PRICE BROTHERS CO., PRESSURE PIPE DIV., 1826 EAST MONUMENT AVE., DAYTON 1, OHIO, does the exact opposite in its newly released 16-page booklet on how to lay concrete pressure pipe. Speaking without technical language, diagrams or calculations, the booklet covers each operation in short, to-the-point paragraphs with accompanying illustrations. Address the manufacturer for your copy.

### Open Steel Flooring and Stair Trends

**306** What do you most desire from open steel flooring and stair treads? Strength? Safety? Ease of maintenance? Bates Fillet-Welded Hex Cross Bars that go into the making of Bates Grates, give you all of these, plus the assurance of slip-proof, self-cleaning floors. Learn more by writing WALTER BATES CO., INC., JOLIET, ILL. Ask for *Catalog No.* 520.

### Park Refreshment Trailers

**307** Fully equipped custom-trailers for park refreshment, concessions and display, are manufactured by CALUMET COACH CO., 11575 S. WABASH AVE., CHICAGO 28, ILL. Aluminum covered with non-ferrous fastenings, these trailers have fire-resistant interiors trimmed by cabinet makers. An illustrated pamphlet will be sent by the manufacturer on request.

### Cambrite House Numbers

**308** For numbering municipal buildings, public utilities or city equipment, THE CAMBRIDGE TILE MFG. CO., CINCINNATI 15, OHIO, offers Cambrite glazed tile house numbers. These weather-proof black numbers are visible both day and night and are available with frames for 1 to 5 numerals. Write the manufacturer for complete information.

### All About Motors and Generators

**309** A 50-page pamphlet reprinted from the complete Electrical Reference Book, published in 1952 by the Electrical Modernization Bureau, Inc., is now available from ALLIS-CHALMERS MFG. CO., 1185 S. 70th ST., MILWAUKEE 1, WISC. The pamphlet presents a brief outline of information to assist you in the selection of motive power. Ask for the *Allis-Chalmers Motor and Generator Reference Book*, 51R7933.

### Large Capacity Oscillating Piston Meter

**310** Rockwell's Empire Water Meter is the only balanced oscillating piston meter made in large-capacity sizes. Constructed with a 3-part measuring chamber, Rockwell's Empire Type 16 comes with either open or enclosed intermediate trains; is both sensitive and accurate, measuring closely on small streams. These large-capacity meters are now available in sizes 1½ through 4 inches. *Bulletin No.* W-806 available from ROCKWELL MFG. CO., 400 N. LEXINGTON AVE., PITTSBURGH 8, PA., will be sent on request.

### Stationary Diesels

**311** *Bulletin No.* 5205, just released by THE NATIONAL SUPPLY CO., ENGINE DIV., SPRINGFIELD, OHIO, describes the Lister Models FR4 and FR6, 4-cycle, stationary diesel engines. The 4-page folder gives engine dimensions, weights and technical data on these 1,000 to 1,800 rpm 366 hp to 516 hp, 4 and 6-cylinder units. Address the manufacturer for your copy.

### Traffic, Sewer and Street Supplies

**312** *Catalog No.* 148, issued by W. S. DARLEY & CO., CHICAGO 12, ILL., contains a complete list of traffic, sewer and street supplies for your municipality. Complete with illustrations, specifications and prices, this new catalog will help you outfit your city with the best. Your copy of Catalog No. 148 will be sent on request.

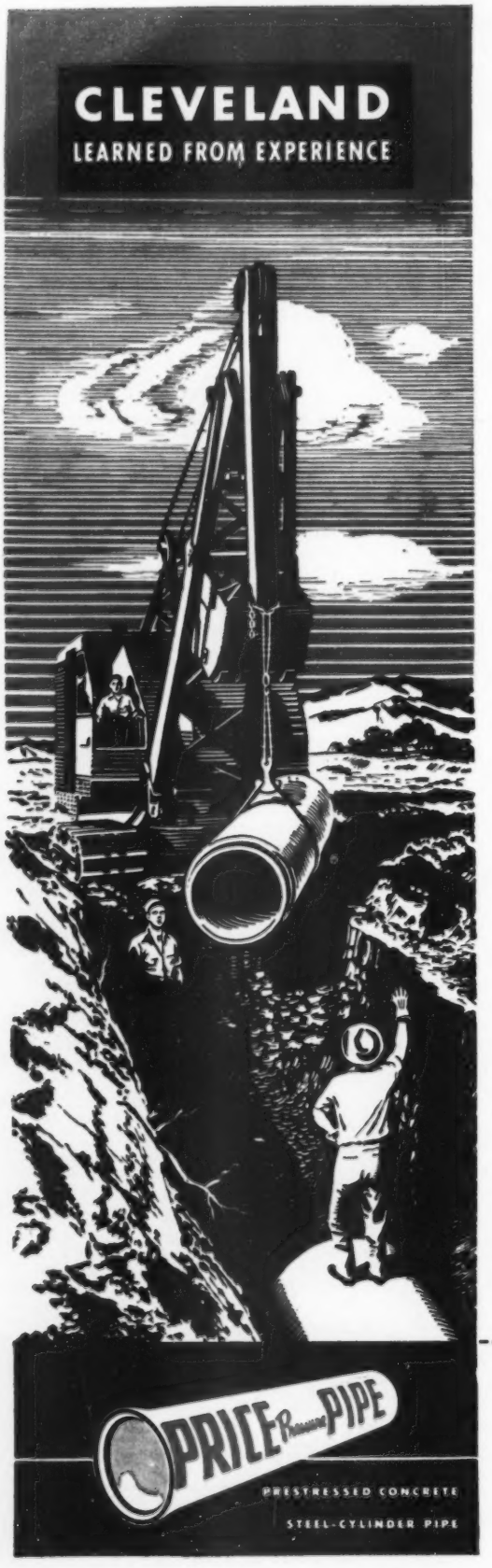
### Record Conversations Undetected

**313** This Walkie-Recordall records conversation noiselessly any time, any place within a 60-ft. radius. Weighing only 8 pounds, the Walkie-Recordall is not connected to an electrical socket—there is no wire, reels, or bulk. For detailed literature and prices, write to DEPT. 8C-4, MILES REPRODUCER CO., INC., 812 BROADWAY, NEW YORK 3, N. Y.

### Efficient Waste Receptacles

**314** Now you can replace those open, unsanitary waste cans with Self-Closing Receptacles manufactured by UNITED METAL BOX CO., INC. Electrically welded throughout of heavy-gauge furniture steel, these receptacles have two independently operating, scientifically counter-balanced, silent doors. The inner container is easily removable. Address your request for descriptive literature to the manufacturer at 172 SEVENTH ST., BROOKLYN 15, N. Y.

***(Please turn to page 27 for more Bulletins)***




# that only C-P-P* meets the BIG 3 REQUIREMENTS

Cleveland's Fire Chief knows how vital *high capacity* can be in a water line. Not long ago he said:

*"Of the seven major factors in grading a city (for insurance), the most important is water supply. We get a lot of deficiency points from the underwriters because much of our 1,500 miles of water mains are* old *and* tuberculation *has reduced their capacity."*

But Cleveland is solving this problem. Price Prestressed Concrete Pipe is now going in on a number of 16-inch, 24-inch, 30-inch and 36-inch supply lines.

Future fire chiefs won't have to worry about tuberculation or corrosion in these lines. Price Pipe *maintains* a high carrying capacity over the years because concrete has the highest flow coefficient of any pressure pipe structural material, and because the flow of water over concrete creates a slippery surface that actually *aids* the flow of water, rather than retarding it.

Price Pipe has long life too. Concrete buried under ground is as ageless as limestone. *Long life* with *continued high carrying capacity* is a tough combination to beat.

But Price Pipe has one other big plus value . . . *great strength.* It is safer from external loads, and sudden complete failure is all but impossible.

Add to these "Big 3" the other advantages of easy installation, easy tapping, watertightness, low original cost and low maintenance . . . and you can see why Cleveland specs now call for concrete bids on all lines 16 inch and over.

For all the facts on Price Pipe, write today.

only CONCRETE PRESSURE PIPE MEETS THE BIG 3 REQUIREMENTS

- LONG LIFE
- SUSTAINED CAPACITY
- GREAT STRENGTH

Price Brothers Company

1827 East Monument Avenue, Dayton 1, Ohio

Please send me, without obligation, the following literature:

- ☐ Check Sheet of Water Line Requirements
- ☐ Facts on Prestressed Pipe
- ☐ Price Pipe for Pressure Sewer Lines

Name_____

Title_____

Organization_____

Address_____

# Which Catalogs Interest You?

***Write directly to the manufacturers or use the coupon on page 25***

### Heavy-Duty Motor Grader Features New Transmission

**315** The new constant-mesh transmission featured in the Adams No. 505 Motor Grader means quick, easy gear shift. Helical gears, all on roller bearings, insure smooth, long-life performance. In addition this 100-hp grader has a double-action braking system which operates on wheels and transmission . . . . enables you to stop with less pedal effort. Complete literature on the Adams Grader is obtainable from J. D. ADAMS MFG CO., 217 S. BELMONT AVE., INDIANAPOLIS 6, IND.

### Twice As Much Street Light With No Greater Power

**316** Twice as much light for the same wattage consumed, that's what you get with the new Mercury Vapor Lamps. The burning life of these lamps is several times longer than incandescents. Perfect for municipalities and utilities where efficiency and economy count. For information on Mercury Vapor Lamps and their practical application, write AMPLEX CORP., DEPT. K-4, 111 WATER ST., BROOKLYN 1, N. Y.

### Lower Costs With Plastic Cable

**317** Wherever cable is used, you'll get more for your money with Ankoseal all-plastic, light weight cables, says this manufacturer. Not only does the light weight and easy handling of Ankoseal result in lower installed costs, but there are further savings from longer service life and reduced maintenance. Ankoseal's physical and chemical properties resist all the elements that ordinarily attack ordinary cables. THE ANSONIA WIRE & CABLE CO., ANSONIA, CONN., will send literature.

### Municipalities Need This Sweeper

**318** Operating on loose stone, dirt, lawn areas or any hard surface, the Mulch-Vac Sweeper cuts up and bags material—handles paper, popcorn boxes and Dixie cups. Powered with a 6-hp Wisconsin Engine, the Mulch-Vac is self-propelled; does not require a skilled operator. Write to ATWATER-STRONG CO., ATWATER, OHIO, for further information.

### Gasoline Hammer Has Many Uses

**319** Use Barco's new Gasoline Hammer for pavement breaking, cutting, digging, rock drilling or frost breaking. A one-man operation, this profitable device needs no compressor. You'll find it simple to transport from place to place. *Bulletin* 613, available from BARCO MFG. CO., 535 E. HOUGH ST., BARRINGTON, ILL., will bring you full details.

### Rotary Power Mower

**320** The Cyclo-mo rotary power mower trims close to fences, walls, sidewalks, and curbs. With a heavy, full size 20-in. suction or lift type blade, Cyclo-mo mows fast and clean; follows the natural contour of your lawn without scalping. A specially designed blade and shroud permit desirable leaf mulching action. Complete literature on request from COOPER MFG. CO., 544-546 S. FIRST AVE., MARSHALLTOWN, IOWA.

### Automatic and Manual Parking Meters

**321** Your city needs parking meters that will cut out wasteful maintenance and conserve meter revenue. Both the Duncan-Miller manual, and Duncan-Automaton automatic offer you time and money saving features. Which meter will best serve your city's future needs? Get the facts by addressing DUNCAN PARKING METER CORP., 835 N. WOOD ST., CHICAGO 22, ILL.

### Keeps Pipe Joints Tight

**322** The cheapest way for you to deliver water to the place where it turns into revenue is with a Dresser-Coupled steel line. Resilient Dresser gaskets keep joints tight, yet flexible—absorb shocks of ground shift, vibration, contraction and expansion. Write for details to DRESSER MFG. DIV., 59 FISHER AVE., BRADFORD, PA.

### Emergency Power Prevents Panic

**323** When power fails and lights go out, panic is just around the corner. Accidents occur. Lives are endangered. These are the reasons why public buildings and institutions need stand-by emergency power. Fairbanks-Morse stand-by generating sets have been proven effective panic stoppers. For complete details write FAIRBANKS, MORSE & CO., 600 S. MICHIGAN AVE., CHICAGO 5, ILL.

### One-Man Pipe Pusher

**324** Speed jobs with this quick, simple way to install underground pipe. With the Greenlee pipe pusher one man pushes the pipe under obstacles. There is no tearing up of pavement, floors or lawn—eliminates extensive ditching and tedious backfill. GREENLEE TOOL CO., 2024 COLUMBIA AVE., ROCKFORD, ILL., will send full information on request.

### Mobile Mixing Unit Does Low-Cost Patching

**325** HETHERINGTON & BERNER INC., 737 KENTUCKY AVE., INDIANAPOLIS 7, IND., has designed a mobile mixing unit which delivers up to 10 tons of freshly mixed material per hour. The material is deposited on a pan of convenient height for easy shoveling, or may be dropped directly on any road surface. *Bulletin MP-51* gives complete information on the Moto-Patcher.

### Put This Front-End Loader On Your Trucks

**326** Collecting trash, leaves and broken pavement, handling sand, dirt, ashes and snow—these are a typical few of the many jobs that can be done faster with Holmes-Owen Loaders fitted to your dump trucks. On every job, the driver alone can load, haul and dump—there is no need for further manpower or more costly equipment. Write for literature and prices to ERNEST HOLMES CO., CHATTANOOGA, TENN.

### Easy Sanitary Fill Method Of Waste Disposal

**327** Ordinary garbage, bulky boxes, stubborn rubbish of any kind—it's all grist for the fill with an International Crawler-Bullclam on the job. This one-man unit is specifically designed to handle all 4 steps of the complete sanitary fill job. It prepares the site, crushes and compacts refuse, transports and spreads earth cover, and grades and levels the finished area. For further data, write INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

### Keeping Water Out Of Concrete and Masonry

**328** When Anti-Hydro is used in portland cement mortar for masonary walls, it prevents the infiltration of water through the masonry. No surface treatment is required. Anti-Hydro produces impermeable cement mortar and masonry; is guaranteed to reduce efflorescence. Literature is available from ANTI-HYDRO WATERPROOFING CO., 265-277 BADGER AVE., NEWARK 8, N. J.

### Attach Street Signs With Steel Strapping

**329** What is the most inexpensive way to attach street signs? According to hundreds of city and state highway departments, A. J. GERRARD & CO. modern strapping methods accomplish the job for less money in less time. For permanent mounting Gerrard & Co. suggests stainless steel, with galvanized steel for semi-permanent mounting. Details on the low-cost Gerrard method may be obtained from the manufacturer at 1952 HAWTHORNE DRIVE, MELROSE PARK, ILL.

### Get Rid of Pigeons The Easy Way

**330** No one hates pigeons, but oh, those building repairs! Here is a repellent that eliminates pigeons, sparrows and starlings without harming them. The sticky substance has no chemical reaction on building materials; will not affect humans internally, or externally. Each application of Bur-Co Bird Repellent applied properly will get rid of birds for at least one year. Write for details to BURR CHEMICAL CO., 814 S. MAIN ST., ROCKFORD, ILL.

### Traffic Problems Solved With These Meters

**331** The growing traffic problem is being solved in many cities by the on-the-spot time-and-coin conversion features of Dual Parking Meters. These meters are set for longer or shorter periods of time as traffic conditions change. Will operate dependably and automatically in all weather conditions. Dual Bulletins DU-521 for on-street parking, and *DU-522* for off-street parking, will be sent by THE DUAL PARKING METER CO., CANTON 2, OHIO.

### Electric Hedge Trimmer

**332** Sipco, the electric hedge trimmer that cuts hedge stems up to lead pencil size, is ideal for trimming all types of shrubbery and shaping dwarf trees and large evergreens. It pulls twigs in and cuts them off rather than pushing them away. The only hedge trimmer with two handles, the Sipco is easier to operate; cuts an area 14 inches wide and gives a good, even cut the first time over. Details on the new Sipco, with the patented center drive, will be sent on request by SCHARTOW IRON PRODUCTS CO., RACINE, WISC.

### Makes the Hardest Water Soft As Rain

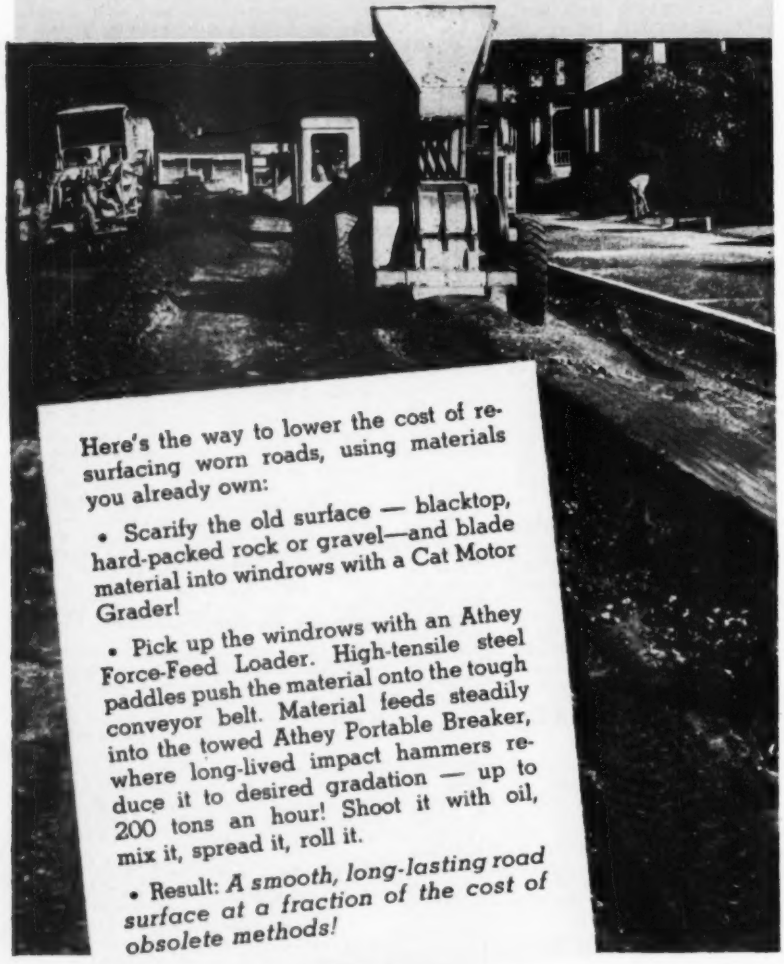
**333** If your municipality faces the inconvenience and economic loss caused by hard water, then you should have the booklet, "Ion Exchange with Duolite Absorbent Resins," describing water-softening ion-exchange resins made by the Chemical Process Co. These resins are used in the water softening plant of the Metropolitan Water District of Southern California, whose total planned capacity is 400,000,000 gallons daily. Get your copy from CHEMICAL PROCESS CO., 901 SPRING ST., P. O. BOX 829, REDWOOD CITY, CALIF.

### Ease That Fall With Cushioned Surface

**334** A scientifically engineered protective cushion, Parafall is designed to safeguard children from dangerous injuries caused by falls from playground apparatus. Shock absorbing cushion may be permanently laid on any existing surface under swings, slides, etc. Parafall is composed of Shock-O-Mat, Shockbrane and Parascuff; will remain alive and resilient for years. Learn more by writing SOUTHERN CHEMICALS, INC., 5225 WILSHIRE BLVD., LOS ANGELES 36, CALIF.

***(Please turn to page 28 for more Bulletins)***

# HOW THE NEW Athey METHOD BUILDS BETTER ROADS Faster . . . At Less Cost!



Here's the way to lower the cost of resurfacing worn roads, using materials you already own:

• Scarify the old surface — blacktop, hard-packed rock or gravel—and blade material into windrows with a Cat Motor Grader!

• Pick up the windrows with an Athey Force-Feed Loader. High-tensile steel paddles push the material onto the tough conveyor belt. Material feeds steadily into the towed Athey Portable Breaker, where long-lived impact hammers reduce it to desired gradation — up to 200 tons an hour! Shoot it with oil, mix it, spread it, roll it.

• Result: *A smooth, long-lasting road surface at a fraction of the cost of obsolete methods!*

SEND FOR FREE BOOK

A factual, 24-page book on reclamation of worn roads and streets is yours for the asking. Mail coupon for your copy!

NAME THE DATE WE'LL DEMONSTRATE *On Your Job!*

Athey PRODUCTS CORPORATION

AC-5

Athey Products Corporation
5631 West 65th Street
Chicago 38, Illinois

Send me a free copy of "The Athey Method of Reclaiming Roads & Streets."

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____


# Catalogs for You

***Write directly to the manufacturers or use coupon on page 25***

## Save Those Old Traffic Signs

**335** Grace Ez-On faces will renew your unsightly or defaced traffic signs. They slip on over your present signs making them as good as new. Made of 30-gauge steel with flanges that crimp over old signs, Ez-On faces attach in less than 5 minutes—are reflectorized for greater safety. Detailed literature will be sent by GRACE SIGN & MANUFACTURING CO., 3602 S. SECOND ST., ST. LOUIS 18, MO.

## Featherweight Winch Hoist With Heavyweight Strength

**336** A vest-pocket hoist, weighing only 8¾ lbs., with the ability to handle weight up to 1½ tons. The Lug-All will do almost any pulling, lifting, moving, tightening, positioning, stretching or straightening job which you may require. Works at any angle. For complete data on hoists and accessories, write today to THE LUG-ALL CO., 331 E. LANCASTER AVE., WYNNEWOOD, PA. Ask for *Bulletin* 118.

## How to Use Alum To Treat Water

**337** The history, properties and uses of aluminum sulfate, as well as its numerous industrial applications, are presented in booklet form by AMERICAN CYANAMID CO., INDUSTRIAL CHEMICALS DIV., 30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y. Included in the sections are Alum in the Treatment of Municipal and Industrial Water Supplies; Alum Handling Systems, and Cyanamid Alum.

## Greater Water Flow With These Hydrants

**338** Large waterways in Eddy Mechanical Joint Hydrants insure a plentiful flow of water. Hydrant opens smoothly with the pressure and closes without water hammer. Mechanical joint connection cuts installation time. Information on Eddy Hydrants with or without auxiliary valve, will be sent by EDDY VALVE CO., WATERFORD, N. Y.

## Heavy-Duty Pipe Cutter

**339** *Circular No. 354C* brings you information on Ellis' heavy-duty pipe cutter, perfect for cutting large size pipes. Mechanism includes long-lasting cutter wheels, and drop-forged frame and links. Will cut pipes in or out of ditch. Write for circular to ELLIS & FORD MFG. CO., FERNDALE 20, MICH.

## No More Climbing Down Manholes

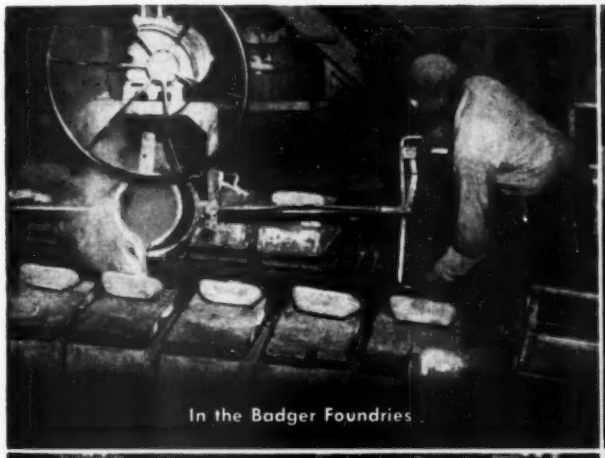
**340** Flexible's new, surface-hung manhole roller makes sewer cleaning easier. The roller installs from the surface, fits any manhole (even over-flowing), and enables you to do a thorough bucket machine job faster. Literature from FLEXIBLE SEWER-ROD EQUIPMENT CO., 9059 VENICE BLVD., LOS ANGELES 34, CALIF.

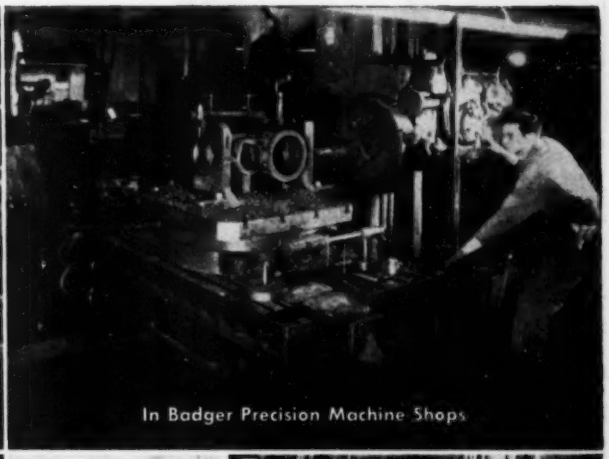
## Oil Filters That Pay for Themselves

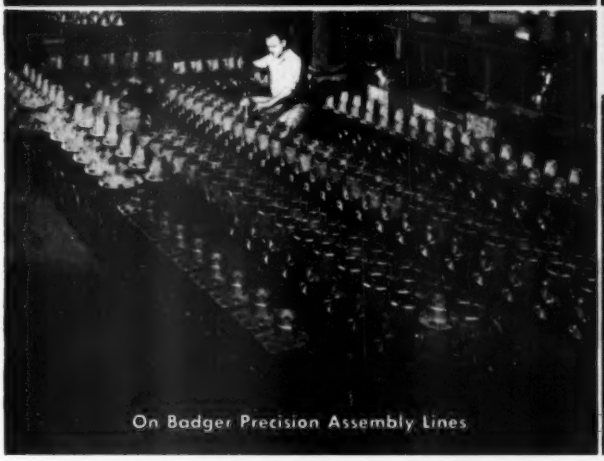
**341** Are you engaged in an industry using heavy machinery depending on the performance of fuels and lubricants? Then Winslow Oil Filters will more than pay for themselves in lowered operating costs and top efficiency. Guaranteed to remove acids, stop moisture and trap abrasives. Free flow maintained by spring coil core. Learn more by writing WINSLOW ENGINEERING CO., 4069 HOLLIS ST., OAKLAND 8, CALIF.

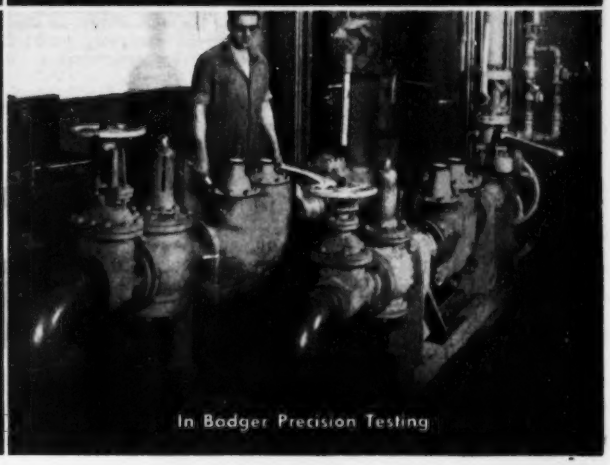
***(See page 31 for more Bulletins)***

# Badger-Controlled Precision and Quality mean more for your meter-money


In the Badger Foundries


In Badger Precision Machine Shops


On Badger Precision Assembly Lines


In Badger Precision Testing

## From start to finish of every type and size of Badger Meter
## precision and quality are Badger-Controlled

"MEASURING THE WATER OF THE WORLD"

*First for Accuracy • Low-Cost Maintenance • Durability • Sensitivity*

**BADGER *Water* METERS**

**BADGER METER MFG. CO., Milwaukee 45, Wis.**

Branch Offices: New York City • Philadelphia
Worcester, Mass. • Savannah, Ga. • Cincinnati • Chicago • Kansas City • Waco, Texas
Salt Lake City, Utah • Guthrie, Okla. • Seattle, Wash. • Los Angeles

# GOLDAK LOCATING EQUIPMENT IS FIRST CHOICE WITH CITIES FROM COAST TO COAST

## DUALTRONIC COMBINATION

BIGGEST MONEY SAVER

## PIPE & LEAK LOCATOR

The "Dualtronic" is acclaimed by Municipalities and Utilities throughout the Country because of the time and labor savings effected by one instrument doing the work of two, so efficiently and effectively. Ruggedly built! Lightweight! One man operation!

## GIANT *in Action*

FEATHERWEIGHT MODEL 87

## PIPE LOCATOR

Pinpoint location of pipes, mains, gates, tees, etc. One man operation, weighs 11 lbs.! Strong, positive location signal guaranteed by Licensed Circuits and MICRO-TUNING, exclusive with Goldak.

## DON'T GUESS..KNOW

MODEL L46

## SENIOR LEAK LOCATOR

Detect costly leaks in water and low viscosity fuel lines, in their exact position. Completely portable, simple to operate. Latest electronic improvements and high quality parts assures unequalled performance. Guaranteed by Goldak.

## ONE MAN OPERATION

MODEL 620

## BOX & VALVE LOCATOR

Pin Point Detection of Goldak's Model 620 saves you time and money with immediate location of Buffalo Boxes, Valves, Covers and Buried Metals. Sturdily constructed, all-weather use.

you get PPD* with Goldak Locators

* PIN POINT DETECTION

The GOLDAK Company
Leading Makers of PIPE LOCATORS Since 1933

WRITE FOR FREE LITERATURE AND NAME OF NEAREST DEALER

1544 WEST GLENOAKS BLVD. · GLENDALE 1, CALIF.

# Obtain This Literature Free of Charge!

*Write directly to the manufacturers or use the coupon on page 25*

### Four and Six Wheel Drive Trucks

**342** A colorful, 26-page catalog discussing and illustrating Oshkosh 4 and 6 Wheel Drive Trucks is now available from that manufacturer. Gives specifications of various models, as well as components and measurements of each separate part. Write directly to OSHKOSH MOTOR TRUCK INC., OSHKOSH, WISC. for your copy.

### These Signs Protect Your Work Crews

**343** Effective warning signs for work areas with wide base, red angle-iron frames that won't blow over. Yellow free-swinging signs have black lettering on both sides. Weighing only 13 pounds, the portable unit stands 27-in. high by 18½-in. wide. Illustrated folder and price list are yours by writing to EASTERN METAL of ELMIRA, INC., ELMIRA HEIGHTS 1, N. Y.

### Asbestos-Cement Pipe

**344** Interested in water main pipe? The booklet, *Mains Without Maintenance*, gives you valuable data, specifications and reference material on Century Asbestos-Cement Pipe. Century pipe never tuberculates, it's smooth inner surface is permanent, assures continuous flow with minimum pumping costs. For your copy, write KEASBEY & MATTISON CO., AMBLER, PA.

### Mechanical Joint Fire Hydrants

**345** Switch to mechanical joints and you'll have bottletight connections and high speed, economical installations. Iowa hydrants are supplied complete with joint accessories, and fit all classes of cast iron pipe. Literature furnished by IOWA VALVE CO., 201-299 N. TALMAN AVE., CHICAGO 80, ILL.

### Time Switches Provide Light Control

**346** G-E time switches are adjustable for any schedule—can be furnished with an astronomic dial, which follows the constantly changing dusk-dawn pattern throughout the year. Perfect for floodlighting, parking-lot lighting, etc. Time switches save as much as $15 to $25 per light. Further information from GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

### Indicating, Recording and Totalizing Meter

**347** Water, gas, air, sewage, or sludge are accurately measured by the Type H-Meter, developed by SIMPLEX VALVE & METER CO., DEPT. 3, 6789 UPLAND ST., PHILADELPHIA 42, PA. Operating in conjunction with Venturi tubes, flow nozzles and orifice plates, the meter is calibrated to give a plus or minus 2% accuracy at any point. Salient characteristics of the Type H-Meter are described and detailed in *Bulletin No.* 401. Write for your copy.

### Study Aerial Map Detail With This Stereoscope

**348** An all-purpose instrument furnishing either 2-power or 4-power magnification is being offered by ABRAMS INSTRUMENT CORP. Precision-ground, distortion free lenses give clear, sharp images. Simple interpupillar adjustment; foam rubber antifatigue headrest, and ability to fold into handy carrying case, are several advantages you get with each 2-4 Stereoscope. Made entirely of molded nylon and stainless steel, this instrument is practically indestructible. Printed matter available from the manufacturer at LANSING 1, MICH.

### Sludge Disposal Problems Eliminated

**349** The C-E Raymond System of Flash Drying and Incineration provides two modern methods of sewage sludge disposal. Methods may be combined in one system or used alternately. Flash drying turns sludge into marketable fertilizer or soil conditioner, while incineration provides for an easily disposable, sterile ash. Your sludge problems answered by COMBUSTION ENGINEERING-SUPERHEATER, INC., FLASH DRYER DIV., 1315 N. BRANCH ST., CHICAGO 22, ILL.

### Simplify Complicated Figuring Jobs

**350** A versatile office partner, the new Burroughs with multiple totals and direct subtraction is ready and able to perform a variety of figuring functions with a high degree of efficiency. Alternating register control enables the machine to store successive amounts alternately and automatically in two accumulating registers. Individual group totals and the grand total are accumulated simultaneously, without recapping. Find out how you can simplify your figuring work by writing to BURROUGHS ADDING MACHINE CO., DETROIT 32, MICH.

### Grating To Fit Every Job

**351** No matter what your needs, Irving riveted, press-locked or welded grating, is especially designed to fill the bill. Perfect for balcony flooring, catwalks, tree guards, gutter drainage covers and bridge decking. Some 50 years of experience have gone into making this grating light weight, self-cleaning and durable. Irving grating is the synonym for safe walking. Full details available from IRVING SUBWAY GRATING CO., INC., 50-46 27th ST., LONG ISLAND CITY 1, N. Y.

### Crime Detection Equipment

**352** Magnifiers, wire recorder investigation units, badges, cameras, holsters and handcuffs; all these are included in the Faurot line of crime detection and identification equipment. Also special kits for finger printing, taking baby's foot prints and forgery detection. Get *Circular M53*, obtainable from FAUROT, INC., 299 BROADWAY, NEW YORK 7, N. Y.

### Can You Use These Valves In Your Water and Sewage Plants?

**353** Where 100% tight shut-off is not essential. Rockwell Slide Valves provide an ideal means of controlling low pressure fluids and gases. Simple movement of handle, lever, or wheel, will thrust the slide blade into a recess between two accurately profiled valve sections to give tight closure. Perfect for use where control of low pressure fluids or gases is necessary. Write W. S. ROCKWELL CO., 200 ELIOT ST., FAIRFIELD, CONN., for full details.

### Motorized Sewage Pumps Eliminate Pollution

**354** How large sewage pumps are motorized, and their function in eliminating pollution of San Francisco Bay and Boston Harbor is told in two feature articles of E-M Synchronizer No. 38, along with a piece describing unusual plants and animals and the part they play in resolving filth into purity. The fully illustrated *E-M Synchronizer No.* 38, is available on request from ELECTRIC MACHINERY MFG. CO., MINNEAPOLIS 13, MINN.

### Chain Link Fence Never Needs Painting

**355** Permanent fence protection without the bother and expense of fence painting is now being provided by COPPERWELD STEEL CO., 1000 MONONGAHELA AVE., GLASSPORT, PA. Made of wire with a thick covering of copper molten-welded to a strong steel core, Copperweld Chain Link Fence can't rust or deteriorate—is not affected by moisture or industrial atmospheres. Informative 24-page catalog supplied by manufacturer.

### Don't Re-Handle Trash and Rubbish

**356** One truck-mounted Dempster-Dumpster picks up, hauls and empties a multiple number of detachable containers—eliminating re-handling of refuse. Container sizes range up to more than three times the capacity of the average dump truck body. Provides low cost, efficient and sanitary bulk rubbish collection. Details on request from DEMPSTER BROTHERS, INC., 833 DEMPSTER BLDG., KNOXVILLE 17, TENN.

### Shade Tree Protection and Mosquito Control

**357** With Aero-Mist any municipality can afford adequate shade tree pest control. Aero-Mist may be sprayed any place at any time—there is no damaging drip—no wasteful run-off. The air stream easily carries the spray to the crown of the tallest trees. Official tests show killing horizontal coverage up to 1000 ft. in mosquito operations. Details on this and other pest control equipment may be obtained from THE HARDIE MFG. CO., HUDSON, MICH.

### Know About These Small Incinerators?

**358** American incinerators are used where combustible waste and refuse must be destroyed. Will handle dry, wet or slow-burning materials, including toxic gases—in large or small quantities. Units providing for from 125 to 4,000 and more pounds per hour, are manufactured for industrial firms, shipyards, institutions, public buildings and municipalities. Every unit guaranteed to operate efficiently at its rated capacity. AMERICAN INCINERATOR CORP., 5710 NEVADA, E., DETROIT 34, MICH.

### Warning Lights

**359** Circle beam warning lights are used by police, fire, highway and sanitation departments. Economical, with a low battery drain, the circle beam does not operate by motors or gears. Everything else remains stationary while beam revolves bringing a warning to surrounding areas. Catalog will be sent by the JULIAN A. McDERMOTT CORP., 40-22 NATIONAL ST., L. I., N. Y.

### Analyzing Water And Sewage

**360** Lists of laboratory apparatus and chemicals are now available for those interested in the chemical and bacterial analysis of water and sewage. *List No.* 2002 covers water testing equipment; *No.* 2003, sewage testing, and *No.* 2004, suggested equipment for the chemical and bacterial analysis of water and sewage. Each list is based on the requirements outlined in the "Laboratory Manual for the Chemical Analysis of Water and Sewage," by Eldridge and Theroux. For copies, write CENTRAL SCIENTIFIC CO., 1700 IRVING PARK RD., CHICAGO 13, ILL.

***(Please turn to page 32 for more Bulletins)***

# ACE METHOD } OFFERS EXPERT DOUBLE SERVICE

## 1 SEWER CLEANING

WITH MAXIMUM EFFECTIVENESS AT SAVINGS OF 60 TO 80%

MOBILIZED PIPE CLEANING, ANYWHERE ANY TIME

The fast, streamlined ACE-Method assures 100% effectiveness of your sewer lines. Trained crews, using mobilized equipment to meet every sewer condition and size plus constant supervision means a job well done every time. Before new sewer extensions or new disposal plants are built, the old lines must be first cleaned to operate at full capacity. Contact us immediately for estimate on future work . . . take advantage of ACE's skilled know-how.

## 2 WATER MAIN CLEANING

WITH WATER PRESSURES RESTORED UP TO 95% OF ORIGINAL CAPACITY

COMPLETE TURNKEY CLEANING JOB

ACE PIPE CLEANING CONTRACTORS, INC.
Sewer & Water Pipe Specialists
KANSAS CITY MO. BRANCH
Inquire concerning water conditioning after cleaning to preserve coefficient.

Yes, ACE brings you restoration up to 95% of original capacity WITH UP TO 97% SAVINGS OVER NEW INSTALLATIONS.* Chemical and solidified deposits, turburculations and algae are removed. The results bring lower underwriter's fire insurance rates, reduced pumping costs and improved fire-fighting operations. For greater new-extension efficiency and better treatment plant operations let ACE clean the old lines NOW!

*Proof of this amazing fact upon request.

★ CALL COLLECT, WRITE, WIRE FOR FREE ESTIMATE OR MORE INFORMATION — NO OBLIGATION. Send for Free illustrated catalog describing the ACE-Method and what it will do for you!

ACE PIPE CLEANING CONTRACTORS, INC.

SEWER AND WATER PIPE SPECIALISTS

Home Office: 3513 East 18th Street, Kansas City, Mo.

Phone CHestnut 2891 — Offices in Principal Cities


# Catalogs for You

***Write directly to the manufacturers or use coupon on page 25***

### Steel Cut to Size

**361** At each of the 15 strategically located Ryerson plants, experienced steel men who know the special needs of municipal work are ready to assist you. Carbon steel, alloys, stainless—it's still difficult to keep every size of every product always on hand, but you'll find Ryerson can handle most every steel requirement. Write to JOSEPH T. RYERSON & SON, INC., 2558 W. 16th St., CHICAGO 80, ILL.

### Felling, Limbing and Bucking Easy With This Bow Saw

**362** Fast cutting on hard or soft wood, makes the new Precision Bow Saw ideal for felling, limbing, or bucking. This Bow Saw provides safe operation and carrying, because the chain is completely covered for 2/3 of its length. If you want a saw that is safe, accurate and economical, write PRECISION EQUIPMENT, INC., P. O. BOX 168, DANBURY, CONN.

### Regulate Water and Sewage Flow

**363** Your troubles are easily solved if you are hunting for a compact, accurate device to measure, regulate and control the flow of water and sewage. You can install the short, compact Foster Flow Tube right where you want it in the line and you won't have to build expensive vaults such as those needed to house bulkier measuring tubes. You get precise accuracy also, without suffering costly head losses. Get the whole story about these handy, sturdy and accurate flow measuring tubes by writing FOSTER ENGINEERING CO., 835 LEHIGH AVE., UNION, N. J.

### Street Lighting Made Easy

**364** Because of the availability of Monotube Poles in a broad range of standard designs and sizes, the problems connected with any type of thoroughfare lighting are simplified. Write for specific data on your requirements to THE UNION METAL MFG. CO., CANTON 5, OHIO.

### Motor Grader Attachments

**365** *Attachments for your Caterpillar Motor Grader*, is the title of an informative 8-page booklet recently made available for you. The booklet gives a complete listing of 20 such attachments, along with pictures illustrating their usefulness. Copies will be forwarded by CATERPILLAR TRACTOR CO., PEORIA 8, ILL.

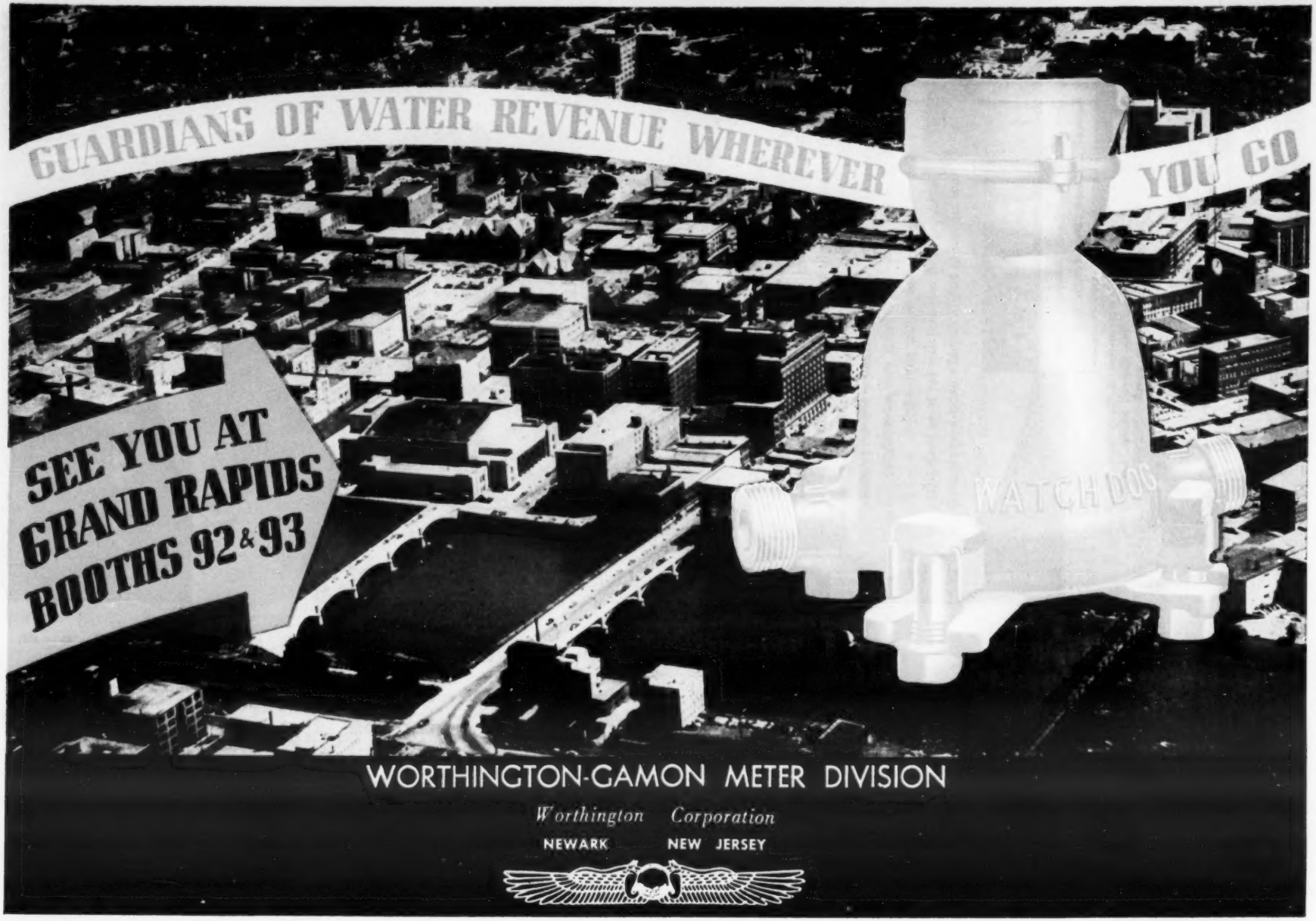
### Rugged Cast Iron Pipe

**366** Made to withstand the wear and tear of modern day strain and stress, Super de Lavaud Cast Iron Pipe is tough, rugged; always a dependable servant. Centrifugally cast in modern lengths. Write for details and prices to ALABAMA PIPE CO., ANNISTON, ALA.

### Sewage Gas Provides Free Power

**367** This engine operates continuously on sewage gas. Can be connected to a generator to provide electric power, or connected directly to pumps and motors. In many sewage treatment plants it produces over 70% of the plant's average power requirements. Climax Blue Streak Engines are your answer to savings in the sewage treatment plant. Write to CLIMAX ENGINE & PUMP MFG. CO., CLINTON, IOWA.

*(See page 34 for more Bulletins)*


GUARDIANS OF WATER REVENUE WHEREVER YOU GO
SEE YOU AT GRAND RAPIDS BOOTHS 92 & 93
WATCH DOG
WORTHINGTON-GAMON METER DIVISION
Worthington Corporation
NEWARK NEW JERSEY

Here's what makes "HEIL EQUIPPED" DUMP TRUCKS PAY-OFF!

Heil double arm, twin cylinder, heavy-duty hoist.

Heil double arm, single cylinder, light and medium duty hoist.

HEIL Bodies and Hoists are built with *your* job in mind . . . to pay off in profit. Heil hoists are fast-acting . . . in less than 12 seconds bodies are elevated to 50° or more! The rugged arm assembly is designed for strength, without dead weight. The simple toggle principle of the linkage eliminates troublesome parts, requires extremely low oil pressure. Check these other Heil dump unit advantages: Lightweight design for bigger payloads; no-sag floor construction for long body life; low mounting height to make hand-loading easier.

THE HEIL CO.

Dept. 4353, 3043 W. Montana St., Milwaukee 1, Wis.
Factories: Milwaukee, Wis.—Hillside, N. J.

Sales Offices: New York, Hillside, Washington, D. C., Atlanta, Cleveland, Milwaukee, Detroit, Chicago, Kansas City, Denver, Dallas, Los Angeles, Seattle; Rio de Janeiro, Brazil.

13 and 18-yd. Heiliner Scrapers

6, 9, 11 and 15-yd. Tractor Drawn Scrapers

Cable Power Control Units


# Catalogs for You

***Write directly to the manufacturers or use coupon on page 25***

## How to Store Fire Hose

**368** Lok-Tite light weight, aluminum alloy brackets help solve the hose storage problem in fire stations by allowing ample ventilation and access in a limited storage space. With Lok-Tite brackets you can build your own racks with new or used materials. They allow you to design your own storage to take full advantage of the space available. Each bracket is easy to install, simple to adjust, and can support heavy loads. Write for details to WB MFG. CO., 157 N. WACO, WICHITA, KANSAS.

## Warning Signals

**369** Elkay Safety Signals meet the demand for a portable, light-weight, sturdy, durable and effective warning sign that may be set up or taken down instantly, and which folds into compact form. Signals come in 3 and 4 ft. automatic types, drive types for mounting signs along highway shoulders or railroad right of way, and barricade types, with frames some 42 in. high. Get details from R. B. OVERTON CO., 3003 EAST GRAND BLVD., DETROIT 2, MICH.

## Lubricated Plug Valves For Water and Sewage Plants

**370** These valves are scientifically designed to provide well proportioned, round-cornered full pipe area port openings, short lubricant passages, and large metal-to-metal head and line seats lubricated and sealed with lubricant under pressure. In addition they require no auxiliary packing. Uniform sections of metal and soft flowing sweeps, assure clean, sound castings and prevent distortion under pressure. Valves contain least possible number of parts. Further details from AMERICAN CAR & FOUNDRY CO., VALVE DIV., 30 CHURCH ST., NEW YORK 8, N. Y. Ask for *Catalog No.* 4.

## How To Construct The Perfect Road

**371** A compact *Road Book* presenting tables and information on the use of Tarvia road tar, and Tarvia-lithic bituminous concrete, has been especially prepared for use by highway engineers, contractors and road builders. May be accompanied by fully illustrated manual describing these and other Barrett paving materials, and giving methods of construction. Write now to THE BARRETT DIV., ALLIED CHEMICAL and DYE CORP., 40 RECTOR ST., NEW YORK 6, N. Y.

## Floodlights For Outdoor Areas

**372** Fully enclosed floodlights, sealed against moisture and dirt to eliminate large maintenance expenses, have been devised for outdoor athletic arenas. Controlled beam floodlight lenses require fewer units, avoid blind spots. *Bulletin* 605 available on request from THE PYLE-NATIONAL CO., 1334 N. KOSTNER AVE., CHICAGO 51, ILL.

## Baby Bulldozer

**373** "A rough, tough, hard hitting little machine that can lift its weight in wildcats," is the way the manufacturer describes the Mighty Mouse Baby Bulldozer. A money and labor saver for the expensive, annoying, hard-to-get-at, labor consuming jobs in municipal street and park departments. Works in close quarters and open areas, grading, excavating, backfilling and removing snow. Literature from MEAD SPECIALTIES CO., 4114 N. KNOX AVE., CHICAGO 41, ILL.

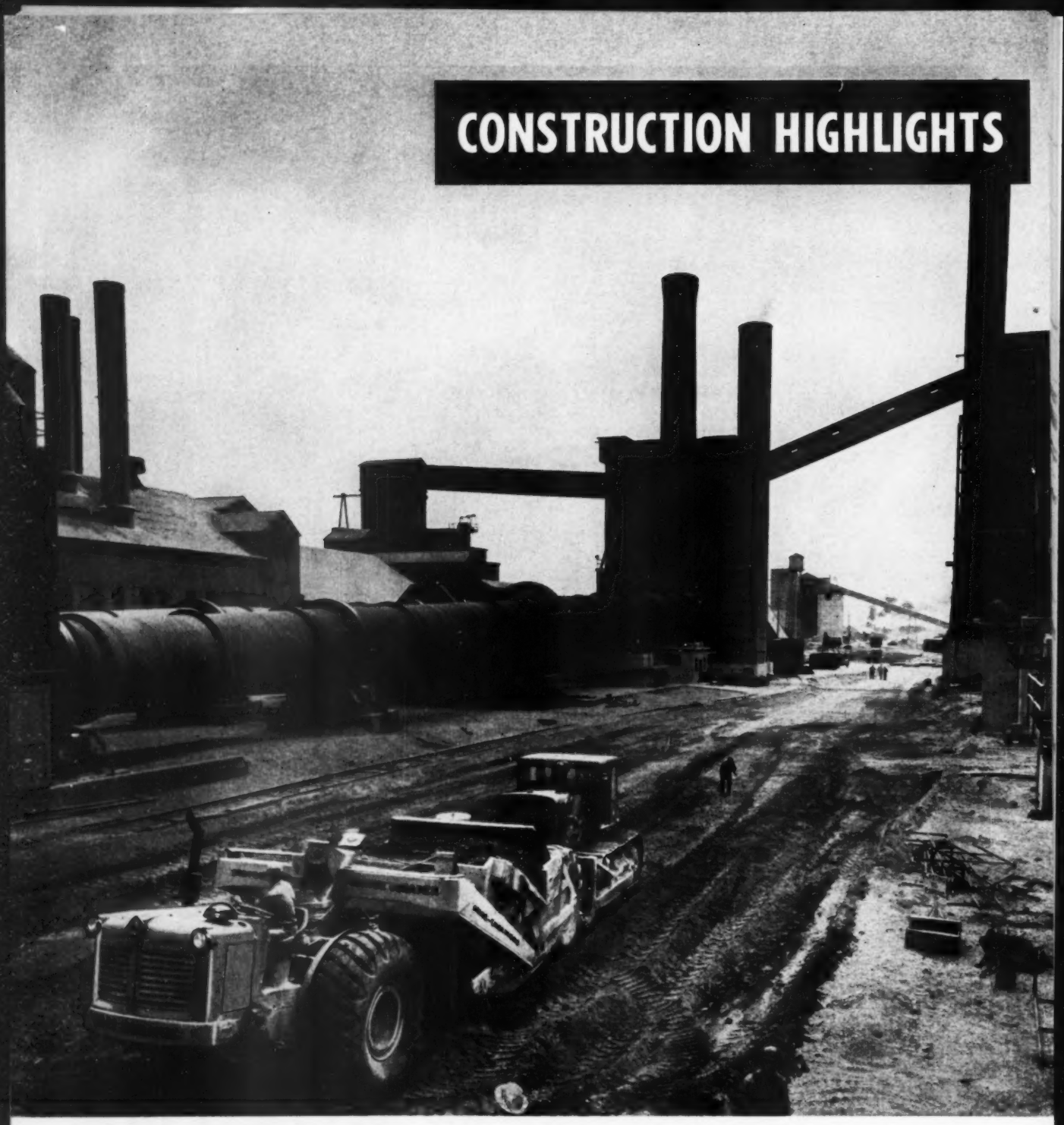
*Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.*

**PIPE LINE CREWS** encounter all kinds of conditions from deep woods to the congested streets in the heart of a large city's business district. This cast iron pipe installation could be either a water supply line from a mountain reservoir or a sewer force main leading to a remote treatment plant. If it were a gas transmission line it would, of course, be mechanical joint pipe.

U. S. cast iron pipe in sizes from 2-inch through 24-inch are cast *centrifugally* in metal molds with bell-and-spigot, mechanical joints and plain ends. The *pit cast* process is used in producing all sizes of flexible joint and flange pipe as well as all pipe 30-inch and larger. Highly developed production controls guard the uniformly high quality of U. S. Cast Iron Pipe.

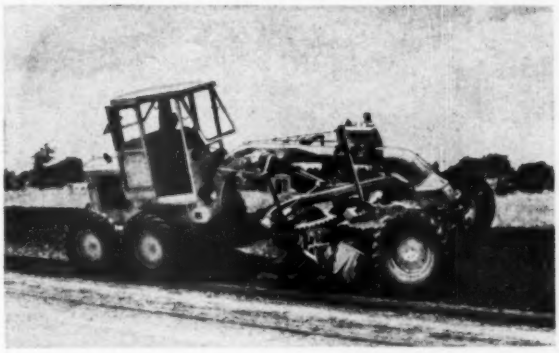
**United States Pipe and Foundry Co.,**
**General Offices, Burlington, N. J.**
**Plants and Sales Offices Throughout the U. S. A.**

**U.S.**
**cast iron**
**PIPE**

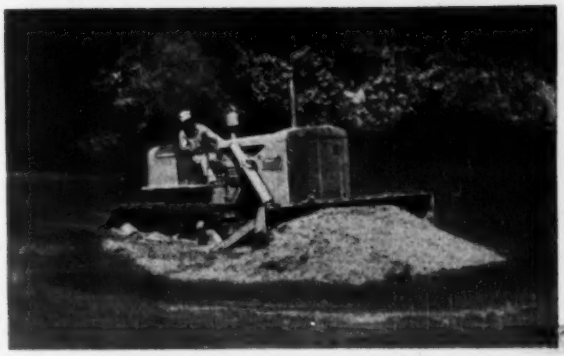



**BUILDING RAILROAD BED** — Here's a correctly matched earth-moving pair at work preparing the bed for a railroad spur in the yards of a large chemical plant. Up front is an Allis-Chalmers TS-300 Motor Scraper, moving up to 18 cubic yards of dirt every pass. Push-loading the TS-300 to a full, fast payload is an Allis-Chalmers HD-20 Tractor, with hydraulic torque converter drive.

# Allis-Chalmers equipment at work . . .



**WORKING OIL MIX** king size. That's what this big AD-40 Motor Grader is doing on a black-topping job. Built-in power steering simplifies operator's work by eliminating tiring "wheel fight."



**FEEDING RIVER SAND** to dragline is a tough job, but this HD-9 takes it in stride. Its Positive Seal truck wheels, idlers, support rollers keep grease in, trouble out . . . require lubrication only every 1,000-hours.

**BACKFILLING** on a water main and sewer construction job is just one of dozens of ways cost-conscious contractors use the versatile HD-5 Crawler.

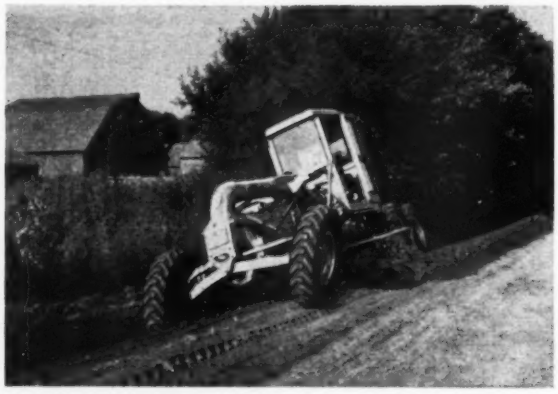
**LOADING BIG BOULDERS** from rock pile to truck is a simple matter for this Allis-Chalmers HD-20G with four cubic yard, front-mounted tractor shovel.

**CLOSE-QUARTER WORK** is made for the Allis-Chalmers Model D. This versatile motor grader handles dozens of jobs, from road building to landscaping, easily and at low cost. And its usefulness is multiplied by several easily mounted attachments, including hydraulically controlled scarifier and rear-end loader.

***Continued on next page***

# Allis-Chalmers helping both small and big contractors . . .

**WIDENING ROAD.** Owner found his HD-15 gives him up to 25 percent more output on short cycle dozing, because operator can go from any forward to any reverse speed in just one lever shift.



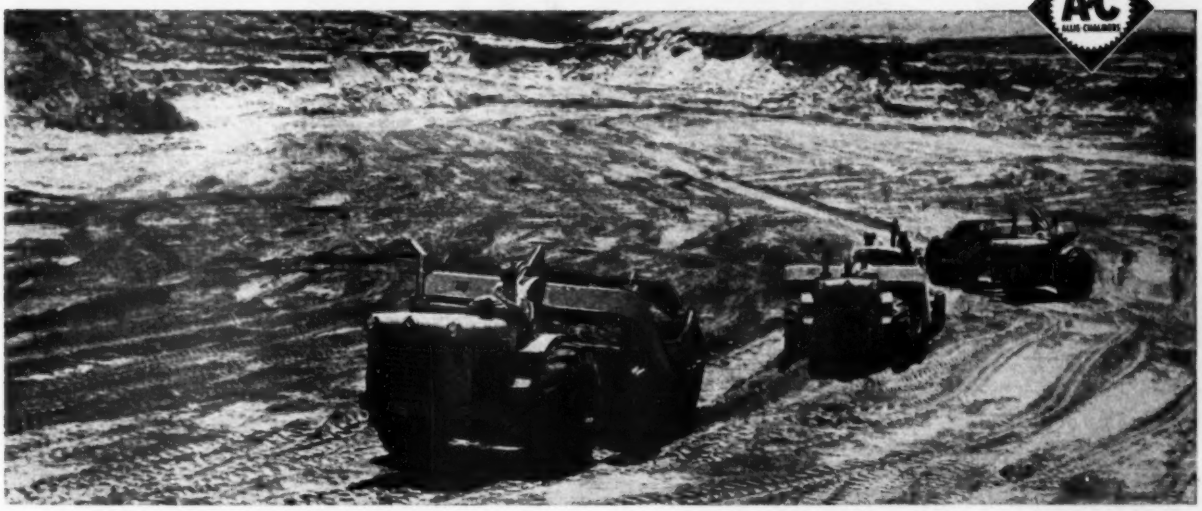
**BETTER DITCHES** result because an AD-40 operator can see graders front wheels and both ends of blade . . . because he has the advantages of Allis-Chalmers exclusive ROLL-AWAY moldboard.

**FULLY LOADED** and ready to make a sharp, downhill turn, this Allis-Chalmers 18-ton-capacity TR-200 Rock Wagon — with air brakes and low center of gravity — is under full control all the way.

**ONE-MAN CONSTRUCTION CREW.** This HD-9G with two cubic yard shovel, shown rough grading here, also lifts, dozes, digs, handles most bulk materials faster, better, more economically than before.

**FLEET OWNERS GO ALLIS-CHALMERS, TOO.** Contractors find the design advantages of Persian orange equipment bring more profit to their operations; and that rugged construction keeps it on the job longer. Now, to fit their jobs, they can select from seven scraper sizes . . . for use with any tractor.

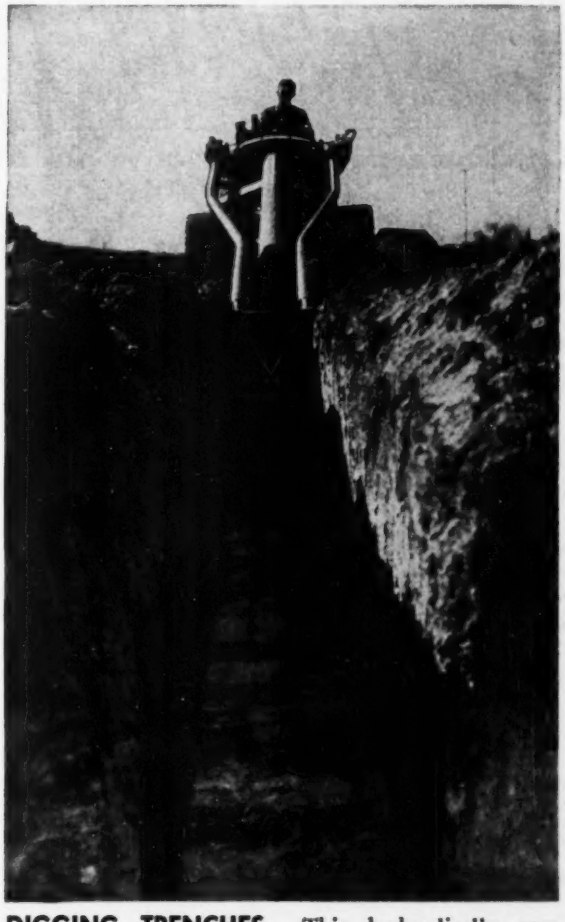
## handle today's jobs at lower cost . . .



**HIGH-SPEED DIRT-MOVING TEAM** loads and hauls big yardage on this large-scale operation. An Allis-Chalmers torque converter drive tractor helps load a trio of TS-200 Motor Scrapers and gives them a fast, smooth start from the cut. Quick to get moving, these hydraulically controlled Motor Scrapers speed to the fill with capacity loads up to 13 cu. yd., and with positive forced ejection, dump fast and clean.

**FINISHING BETWEEN FORMS** takes precision work. That's what this contractor is getting from his Model D . . . the low-cost motor grader, proved on dozens of jobs by thousands of users.

**TOUGH DOZING JOBS** are made to order for the torque converter HD-20. Matching power to the load exactly, this huge tractor automatically moves load at highest speed that conditions permit.



**DIGGING TRENCHES.** This hydraulically controlled, front-end trench hoe is only one of a dozen attachments making Allis-Chalmers HD-5G the most useful tractor in the world.

# "One-man gang"

**lets you use low-cost air anywhere — replaces expensive specialized equipment**

## Le Roi TRACTAIR

### Combination 35-hp tractor — 105-cfm compressor

Why rent or buy expensive specialized equipment? Save your money — because, for a fraction of the cost, you can do most of your jobs with Tractair and attachments.

Just look at what Tractair does:

First of all, Tractair gives you low-cost air power that is self-propelled! You don't tie up trucks or men for transportation. One man and Tractair put 105-cfm of air to work where and when you need it.

Secondly, attachments multiply Tractair's usefulness: With Le Roi-CLEVELAND air tools, you can break pavement, drill rock, dig clay, tamp fill, etc. With a front-end loader and attachments (8 accessories that interchange easily), Tractair loads, lifts, backfills, plows snow, etc.

Let this "one-man gang" show you at first hand all it can do to cut your costs. Ask your nearby Le Roi distributor to take you to see Tractairs at work.

Write for job-data sheets and bulletins.

**Compressors**
**Tractair**
**Rock Drills**
**Engines . . .**

**LE ROI COMPANY** — MILWAUKEE 14, WISCONSIN

*Plants:* MILWAUKEE • CLEVELAND • GREENWICH, OHIO

T-28

**Pavement Breaking** — Here, Tractair runs a Le Roi-CLEVELAND Breaker. When the job is done, Tractair mops up with its front-end loader. You also can use Tractair to run a Le Roi-CLEVELAND sinker drill, clay spades, backfill tampers.

### Nation-Wide Sales-Service Network

ALABAMA: Birmingham, Mobile — ARIZONA: Phoenix — ARKANSAS: Little Rock — CALIFORNIA: Bakersfield, Long Beach, Los Angeles, San Francisco — COLORADO: Denver, Grand Junction — CONNECTICUT: Hartford — FLORIDA: Jacksonville, Miami, Tampa — GEORGIA: Augusta, Decatur — IDAHO: Boise, Idaho Falls, Twin Falls — ILLINOIS: Chicago — INDIANA: Indianapolis — IOWA: Cedar Rapids, Des Moines, Waterloo — KANSAS: Great Bend, Kansas City, Pratt, Wichita — KENTUCKY: Lexington, Louisville — LOUISIANA: New Orleans, Shreveport — MAINE: Augusta — MARYLAND: Baltimore, Hyattsville — MASSACHUSETTS: Hyde Park, Newton Highlands, Worcester — MICHIGAN: Detroit, Grand Rapids — MINNESOTA: Duluth, Minneapolis — MISSISSIPPI: Jackson — MISSOURI: Joplin, St. Louis — MONTANA: Billings, Great Falls, Kalispell, Missoula — NEBRASKA: Omaha — NEW HAMPSHIRE: Manchester — NEW JERSEY: Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Saugerties, Syracuse, Whitesboro, Woodside (L.I.) — NORTH CAROLINA: Charlotte — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo — OKLAHOMA: Oklahoma City, Tulsa — OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Rapid City, Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper.

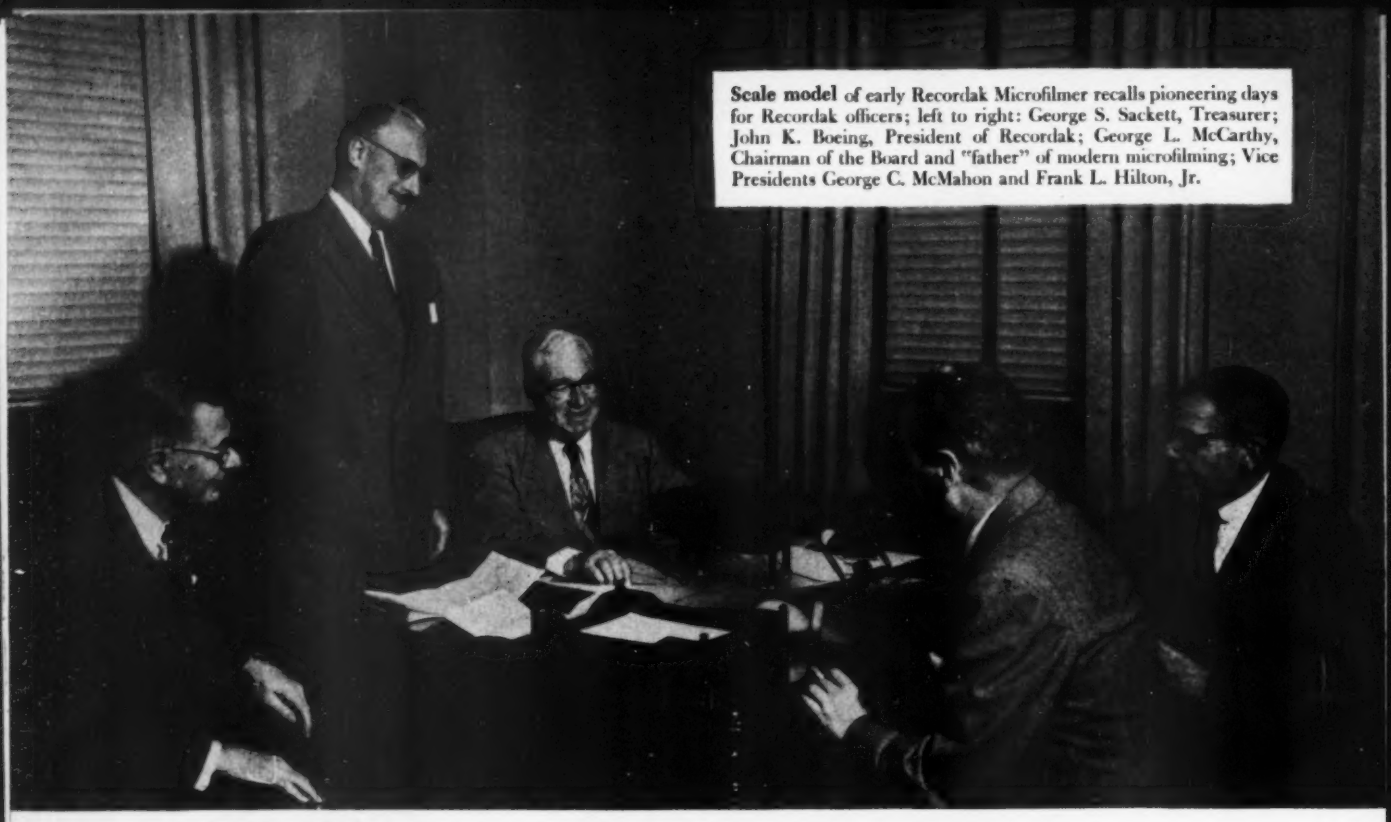
# LE ROI *gives you more for your money!*

## MORE UTILITY! MORE PROFIT!

**Trac-Jac** — A Le Roi-CLEVELAND air-feed sinker drill mounted on Tractair. Feeding and drilling controls are within easy reach of operator. The mobility of this unit makes it ideal for mud-jacking and many other applications.

**Driving Form Pins** — On this highway project, Tractair puts air power to work driving form pins prior to paving. This is another example of how the usefulness of Tractair helps you to do many different jobs, reduce costs.

**Earth Drilling** — Tractair with utility boom operates air-motor-driven earth auger up to 16" diameter — speeds up anchor-hole digging and other earth-drilling jobs. It's another way Tractair gives you extra hours of useful service.



**Scale model** of early Recordak Microfilmer recalls pioneering days for Recordak officers; left to right: George S. Sackett, Treasurer; John K. Boeing, President of Recordak; George L. McCarthy, Chairman of the Board and "father" of modern microfilming; Vice Presidents George C. McMahon and Frank L. Hilton, Jr.

A thousand and one uses, today, for the unique photographic process that was designed originally to protect banks against fraud.

# *Report on 25 years of Microfilming Progress*

Little did George L. McCarthy realize the scope of his invention when the first automatic microfilmer was installed in a New York bank in 1928.

• The sole purpose of this machine—designed in cooperation with the Eastman Kodak Company—was to counter fraudulent claims; to provide a photographically accurate and complete film record of all checks drawn on the bank. A record that would help depositors, too, should their payments be questioned by outside sources.

But the way this amazing new machine performed suggested greater use from the start: documents were recorded as fast as they were dropped into the microfilmer . . . and for a fraction of a cent apiece. *Why then* was it necessary to type a description of all checks forwarded to another bank for payment?

Microfilming would eliminate this costly and tedious operation—thus the Recordak Transit System made its bow; was followed closely by the Recordak Single Posting System, which eliminated a 100% duplication in bookkeeping.

### Savings . . . wherever records were kept

Banks everywhere . . . and then business after business realized that manual record keeping just could not match the speed, accuracy, and economy of Recordak Microfilming.

With it, retail stores were able to bill "charge account" customers for a fraction of the former cost; railroads ended expensive freight-car delays at junction points; courts reduced record-keeping costs as much as 96%. *And so it went!*

## Specialists in microfilming only from 1928 - 1953

How could microfilming efficiency be increased . . . and increased . . . *and increased?* How could businesses of every type and size use microfilming most profitably? To find the answers to these questions and related ones, Recordak has specialized in *microfilming only.*

As a result, improvements were incorporated in Recordak Microfilmers in continuous succession. New models were designed to meet varying requirements . . . to enable the small user to get savings proportionate to the largest one. Revolutionary technics were introduced . . . automatic feeders increased microfilming speed to over 500 documents *per minute* . . . number of images per roll of film was quadrupled . . . and film quality and uniformity were raised to ever higher standards.

Vitally important, too, was the growth and refinement of Recordak's film processing facilities. Laboratories with the latest high speed professional equipment—and staffed by specialists—were established to provide fast, flawless processing of film records. And Recordak's Service Organization was expanded step by step to serve Recordak users from coast to coast. Here, again, specialization has paid off.

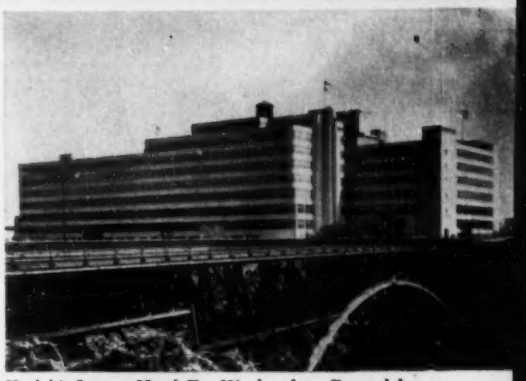
And all the while, Recordak's Field Staff—with an ever-increasing number of case histories at its finger tips—was pointing to economies, previously unseen; bringing simplified record-keeping routines—in addition to extra protection and tremendous space savings—to *65 different types of business . . . thousands of concerns.* Recordak Corporation (*Subsidiary of Eastman Kodak Company*), 444 Madison Avenue, New York 22, N. Y. *"Recordak" is a trade-mark*

1928 25TH ANNIVERSARY 1953

**RECORDAK**

(Subsidiary of Eastman Kodak Company)

**originator of modern microfilming— and its application to government routines**



Kodak's famous Hawk Eye Works where Recordak Microfilmers, lenses, and accessory equipment are manufactured. Recordak Microfilm is also made by Kodak . . . to exacting, uniform standards.

Recordak's 26 conveniently located Processing Stations process films the same day they are received. High speed, professional equipment is manned by experts.

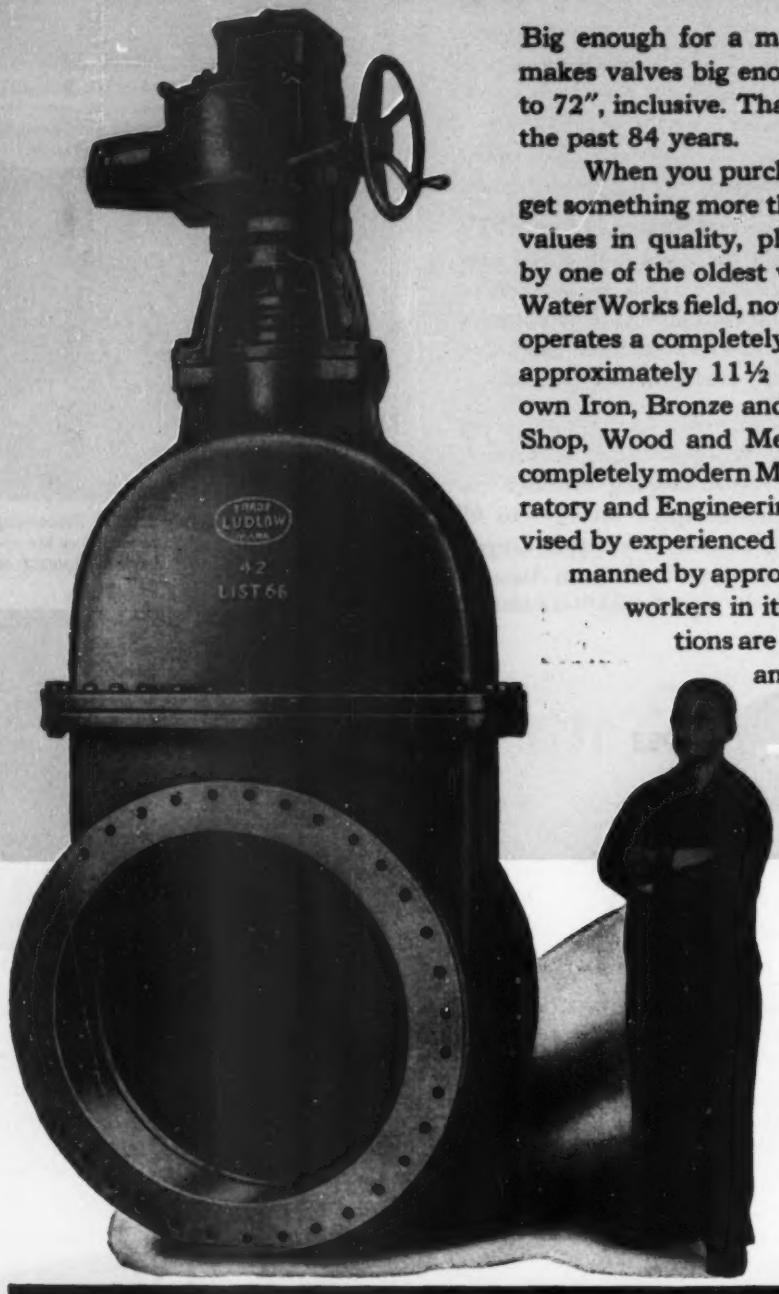
How can you use microfilming most profitably? Your local Recordak representative can point to the experiences of 65 different types of business . . . thousands of concerns.

**The reason why users of every size get comparable savings— Recordak Microfilmers are designed for varying requirements.**

*5 Recordak Microfilmers are designed for copying office-size records.* The "Bantam" (illust.) has the highest reduction ratio available today—40 to 1.

*4 Recordak Micro-File Machines are designed for copying larger records,* bound or unbound. Model E, illustrated.

# BIG ENOUGH FOR THE JOB




**Big enough for a man to enter . . . LUDLOW makes valves big enough for the job, in sizes 2" to 72", inclusive. That has been our practice for the past 84 years.**

**When you purchase from "LUDLOW," you get something more than big valves—you get big values in quality, plus ruggedness, backed up by one of the oldest valve manufacturers in the Water Works field, now in its 84th year. LUDLOW operates a completely integrated plant, covering approximately 11½ acres and consisting of its own Iron, Bronze and Steel Foundries, Machine Shop, Wood and Metal Pattern Shops, with a completely modern Metallurgical Research Laboratory and Engineering Department — all supervised by experienced Engineering graduates and manned by approximately 500 highly skilled workers in its direct employ. All operations are controlled by rigid Foundry and Machine Shop inspection and testing.**

**DIRECT SALES OFFICES**

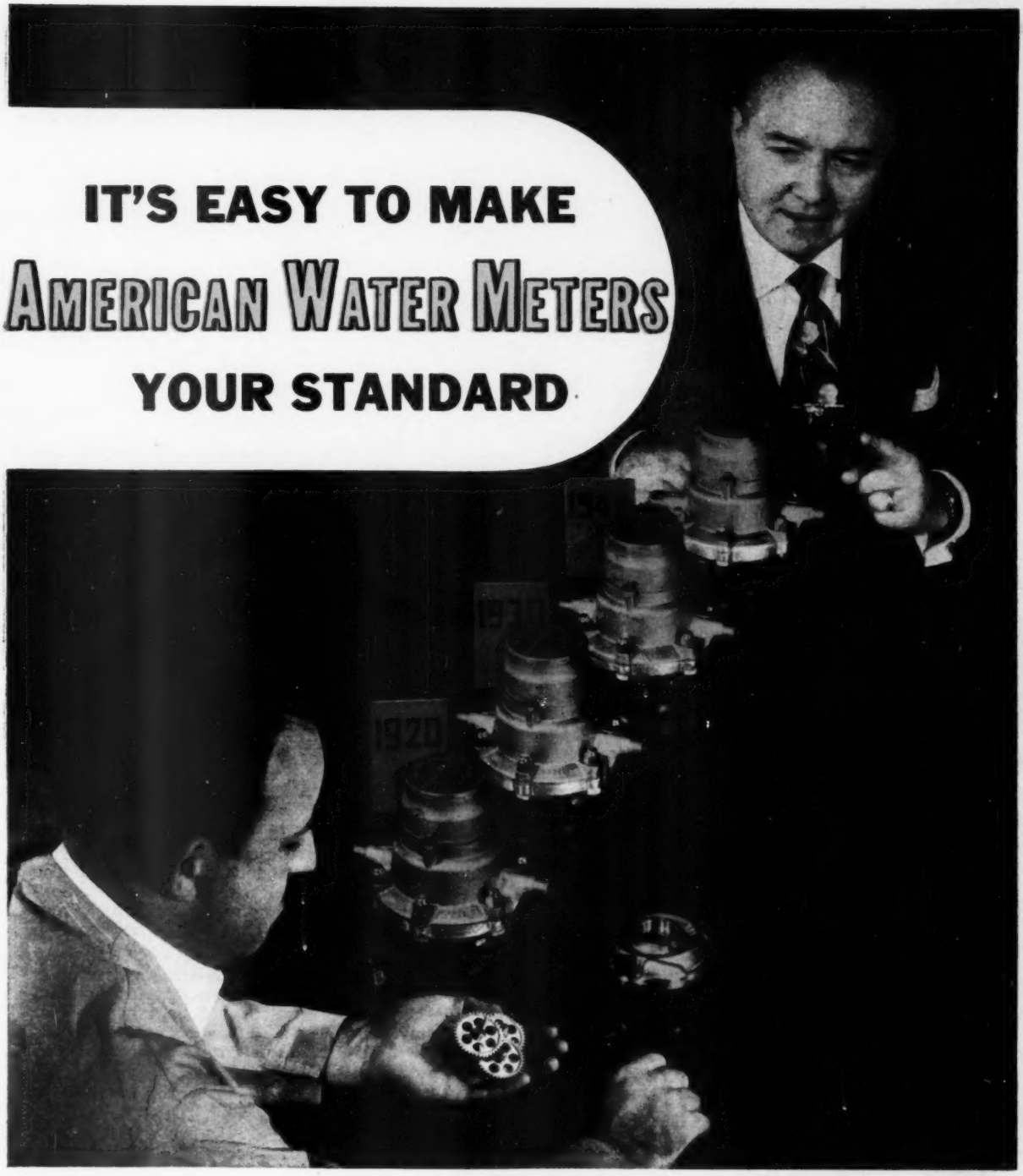
*For prompt and expert service consult your telephone directory in these cities:*

| | |
|---|---|
| ATLANTA, GA. | KANSAS CITY, MO. |
| BOSTON, MASS. | NEW YORK, N. Y. |
| CHICAGO, ILL. | PHILADELPHIA, PA. |
| HOUSTON, TEX. | PITTSBURGH, PA. |

The LUDLOW VALVE SINCE 1861
MFG·CO·INC·TROY·N·Y·

TRADE LUDLOW MARK

# IT'S EASY TO MAKE
# AMERICAN WATER METERS
# YOUR STANDARD




• These unit assemblies or any parts of them are interchangeable with parts in these older meters. Advances in metallurgy and design have been made to improve function and lengthen life without changing dimensions.

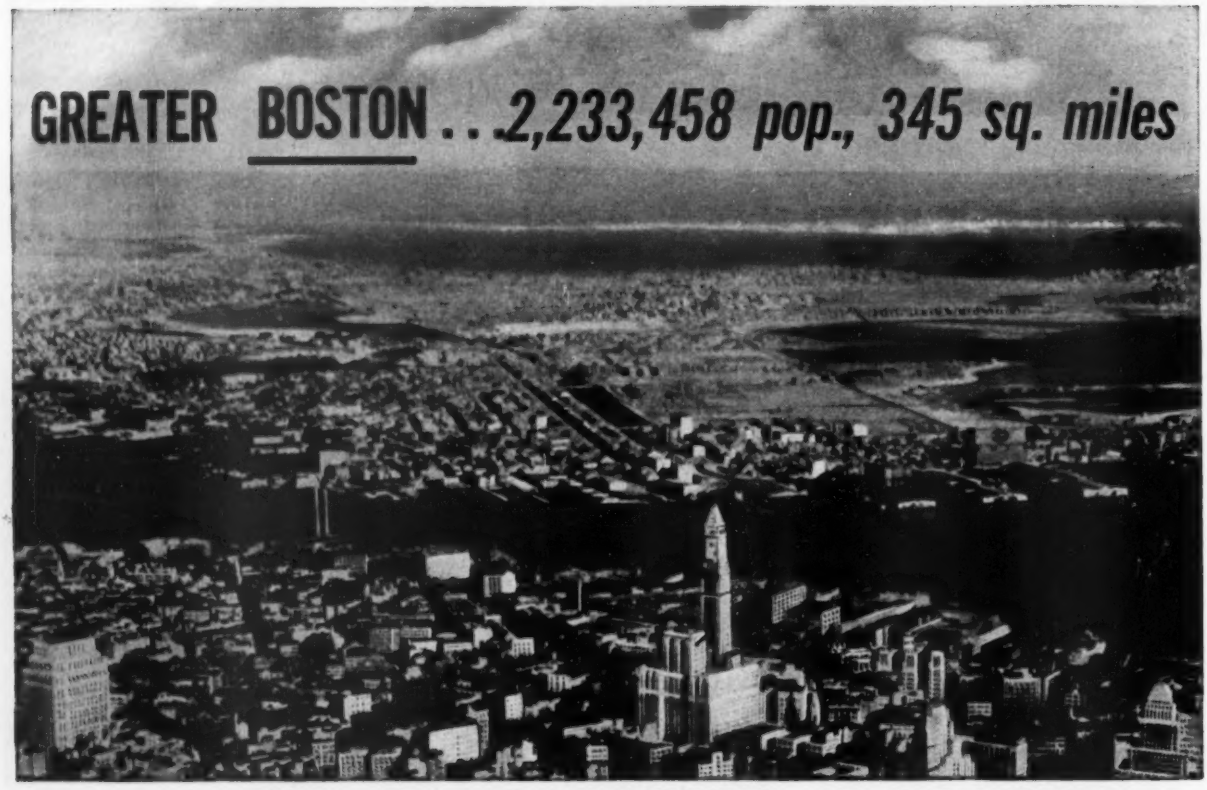
City departments save cost by standardizing on American Meters. There are savings in stock inventory, repair time and parts cost. Meters are kept in service earning dollars — with a minimum of shop effort.

American Meters are designed for cities that figure costs closely, a basic long term policy of Buffalo Meter Co.

*Ask for complete data.*

## BUFFALO METER CO.

**2902 MAIN STREET, BUFFALO 14, NEW YORK**




# . . . 15 CHRYSLER SIRENS

Historic Boston—and the surrounding communities of Cambridge, Brookline, Somerville, Chelsea, Belmont, Medford, Arlington, Malden, Everett, Revere, Edgeworth, Wellington and Watertown—could be warned of impending danger with a system of just 15 Chrysler Sirens. This quantity would provide basic coverage and assure the nearly two and a quarter million residents of the most effective warning system yet devised.

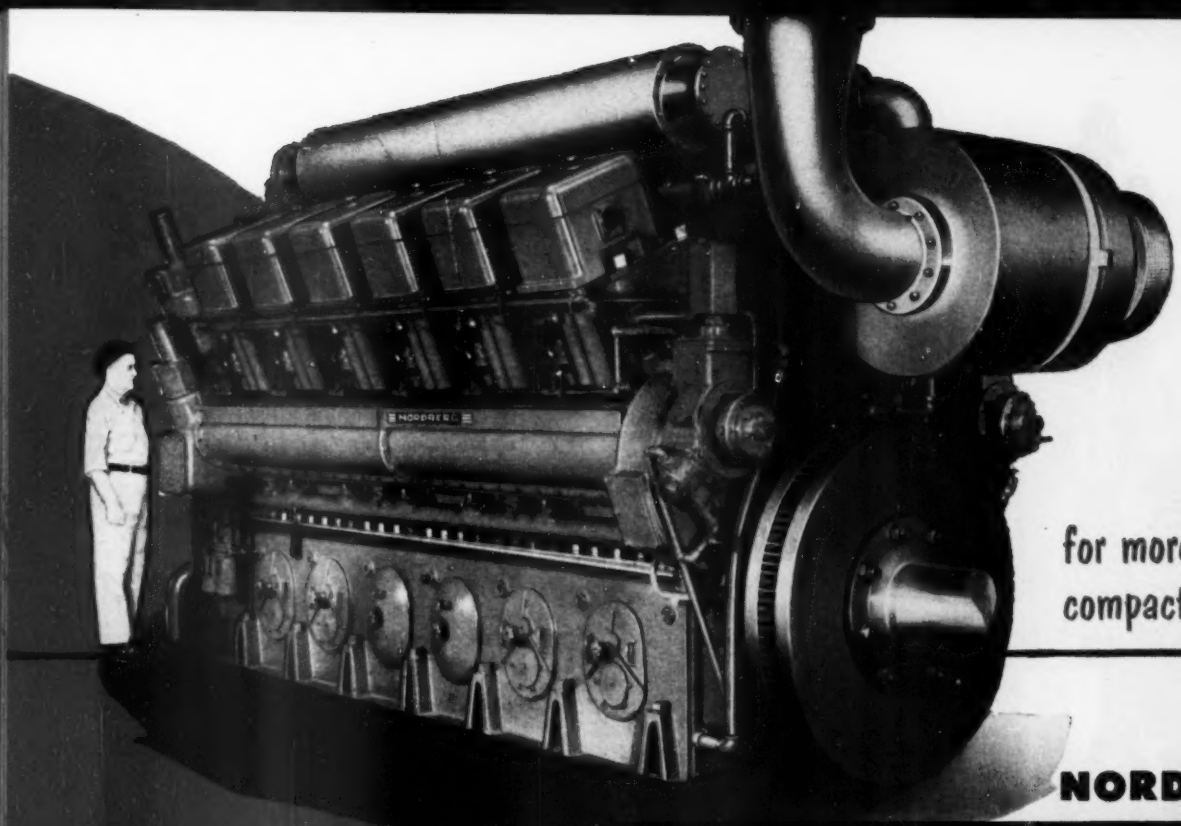
Power, sound mechanism, controls . . . all are included in this completely self-contained unit. For local application, the Chrysler Siren can be operated manually from the Siren. Alone, or as part of an entire system, it can be operated automatically by utility circuit from a remote-control point.

The mighty 180-h.p. Chrysler V-8 Industrial Engine develops a terrific 400 mile per hour blast. The resulting sound, ranging in intensity from a deep-throated roar to a shrill scream, carries up to *four miles in every direction* from the rotating siren.

Let Chrysler Siren engineers assist your community in planning its protection. Learn why no other warning device compares for power, for mobility, and—because of its tremendous coverage—for economy. **Write: Dept. 25, Chrysler Siren Layout Service, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.**

**CHRYSLER**
**AIR RAID SIREN**

**Defense is a vital need, shared by all. Join and assist the Civil Defense group in your area.**



for more economical compact power . . .

**NORDBERG**

# SUPAIRTHERMAL

## FOUR-CYCLE V-TYPE ENGINES

- COMPACT
- HIGH THERMAL EFFICIENCY
- ECONOMICAL
- DEPENDABLE
- RUGGED CONSTRUCTION
- WIDE HORSEPOWER AND SPEED RANGE

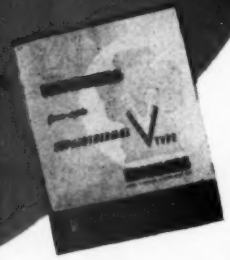
*. . . another important Nordberg advancement in the design and development of more efficient engines*

Here is the Nordberg four-cycle SUPAIRTHERMAL V-Type engine . . . designed and built for continuous low cost operation for a wide range of stationary and marine power applications. This engine is available in 12 or 16 cylinders of 13″ bore in Diesel, Duafuel or Spark-Fired Gas types from 2400 to 4260 hp at 450 to 600 rpm.

The design of this V-Type engine incorporates all tested and proved performance features of Nordberg 13″ bore in-line SUPAIRTHERMAL engines. The high thermal efficiency of the SUPAIRTHERMAL engine is made possible by variable inlet valve timing control . . *an exclusive patented Nordberg feature.*

*Trademark

For full details write for BULLETIN 197.

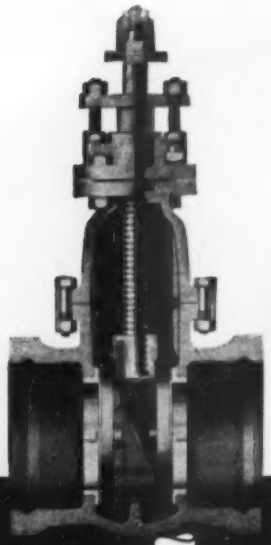


**NORDBERG MFG. CO., Milwaukee, Wisconsin**

*Builders of America's largest line of heavy-duty Diesel engines from 10 to over 10,000 horsepower*

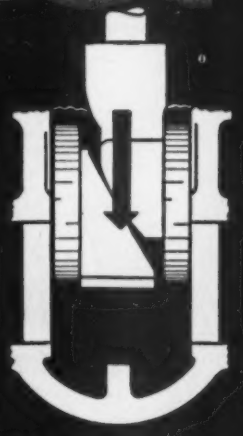
# NORDBERG

DIESEL • DUAFUEL® AND SPARK-FIRED GAS ENGINES

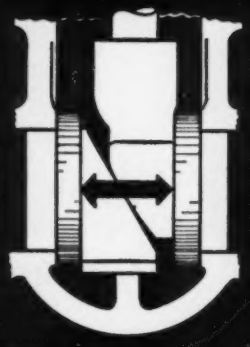


# Look how you gain LONGER, TROUBLE-FREE VALVE LIFE

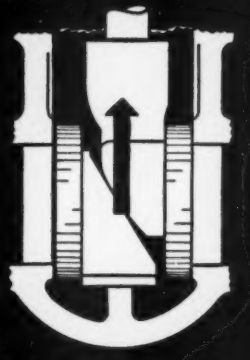
**with Darling revolving disc gate valves***



**DESCENDING.** Fully revolving discs, independently hung, change seating position at each closing, assuring uniform wear distribution for prolonged service. Plain "no pocket" discs are interchangeable for *extra* life!



**CLOSED.** Faces of upper wedge are radiused and faces of both wedges are transversely beveled for equalized wedging pressure and *tight closing despite valve body distortion.*



**RISING.** Wedging pressure on both discs is released before discs start to rise. Complete absence of wedging pressure during travel of discs assures easy operation, tight closing and greatly prolonged valve life!

***DARLING REVOLVING DISC GATE VALVES FOR EVERY NEED.**

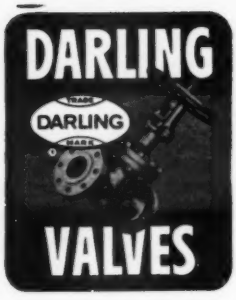
These unique Darling valves are available in a broad range of sizes and types, manually or motor operated, for all normal or unusual services. Before you invest in *any* valves, find out what you stand to gain by using the proper Darling valves on your job. Simply outline your service needs for specific data . . . or . . .

ASK FOR BULLETIN No. 5002

## DARLING VALVE & MANUFACTURING CO.

**Williamsport 10, Pa.**

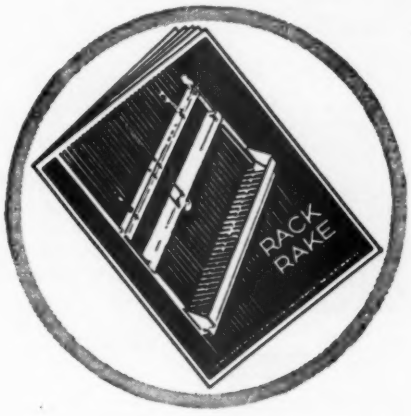
***Manufactured in Canada by The Canada Valve & Hydrant Co., Ltd., Brantford 7, Ontario***




**FOR PLUS VALUES, JOB-PROVED AGAIN AND AGAIN**

# NEWPORT NEWS MECHANICAL RACK RAKE

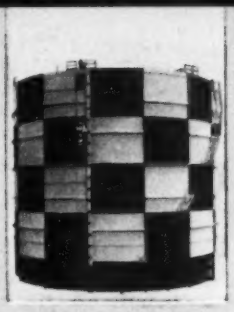
*WATER users troubled with trash are invited to write for new descriptive rack rake catalog.*

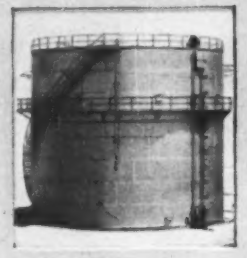



**THE Newport News Mechanical Rack Rake is a power-operated rake for cleaning trash racks at water intakes for hydroelectric plants, steam plants, pumping stations, canals and similar installations. It cleans the rack bars of trash and reduces a former major hand operation to one of minor periodic activity. With Newport News Mechanical Rack Rake installations, one man per shift can, under ordinary conditions, keep the racks clean for a dozen bays.**

## NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY

**NEWPORT NEWS, VIRGINIA**

users of chemical process  and industrial gases

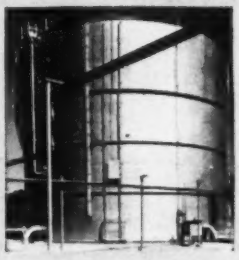
get rid of  weather-worries and operating costs

with the..

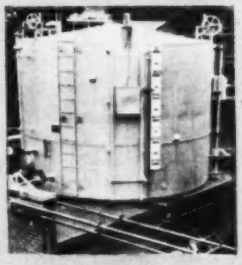
# Wiggins Gasholder

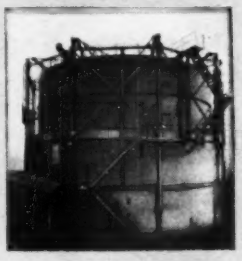
## by GENERAL AMERICAN

More than 50 users of Wiggins Gasholders can now testify to the remarkable savings in operating costs and maintenance expense which only this 100% dry seal gasholder (no water, no tar, no grease) gives them. Write for full information.



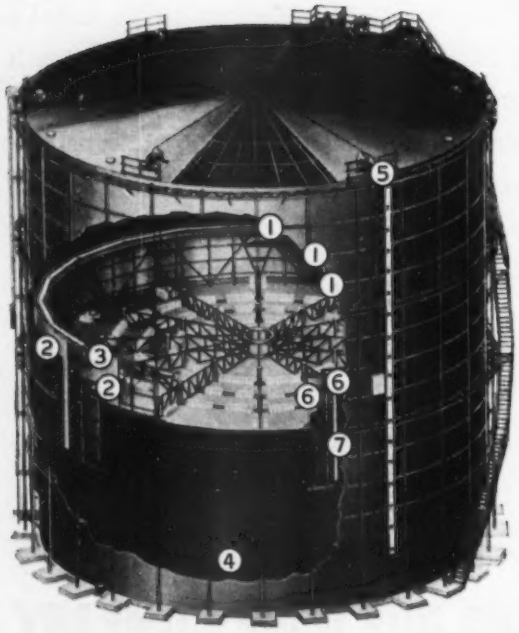
SEE US AT BOOTHS 735-736 AT THE A. G. A. CONVENTION IN ATLANTIC CITY, WEEK OF OCTOBER 27th





CONVERSION EASY— OFTEN ADDS CAPACITY

Your old gasholder can be quickly converted to a Wiggins type with all the Wiggins advantages.




1 TOP SECTION OF SHELL COMPLETELY VENTILATED

2 WIDE CLEARANCES SIMPLIFY OPERATION

3 GAS-TIGHT FRICTIONLESS SEAL NOT AFFECTED BY WEATHER

4 PISTON RESTS ON BOTTOM—LESS THAN ½ OF 1% FOR PURGING

5 LEVELING DEVICE—INDEPENDENT OF SIDE WALL—KEEPS PISTON LEVEL

6 FENDERS PREVENT ALL TENSION IN SEAL

7 SHELL IS GAS-TIGHT UP TO SEAL CONNECTION

PISTON RISES NEARLY TO TOP—MINIMUM OF WASTE SPACE
CAN BE BUILT ANY SIZE • NO CONTAMINATION OF GAS

GENERAL AMERICAN

**GENERAL AMERICAN TRANSPORTATION CORPORATION**

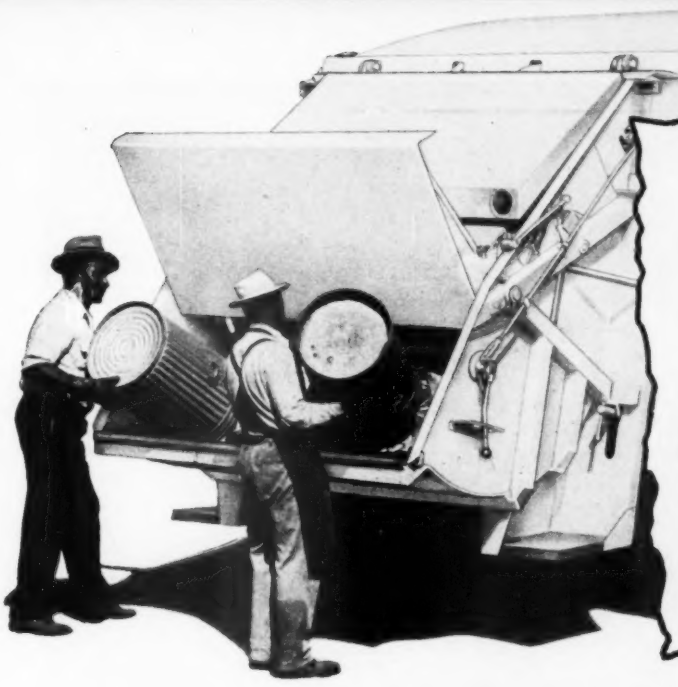
135 South LaSalle St. • Chicago 90, Illinois

OFFICES IN PRINCIPAL CITIES

*Export Dept.:* 10 East 49th Street, New York 17, New York

*Plants:* Birmingham, Ala. • East Chicago, Ind. • Sharon, Pa.

*In Canada:* Toronto Iron Works, Ltd., Toronto, Ontario



# HERE'S HOW LOAD-PACKER REFUSE COLLECTION CUTS COSTS MORE THAN 50% in a TYPICAL COMMUNITY

In many towns with 3,000 to 6,000 population, one Gar Wood LOAD-PACKER has replaced from three to five open-type trucks formerly used for municipal refuse collection. And, in larger towns and cities, equipment savings increase in even higher proportion.

For example, consider a typical American city of 6,000 people which would average about 1,600 dwellings. A single LOAD-PACKER with a crew of two loaders and a driver can service 800 dwellings each 8-hour day. Thus it's easy to maintain a schedule of one weekly residential garbage collection, one weekly trash and ash collection and daily garbage and trash collections at commercial establishments. One day each week, too, can be reserved for general or special clean-up jobs.

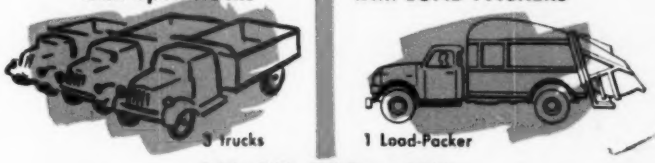
Under this easily maintained schedule, one LOAD-PACKER offers better service to residents than was previously possible with a minimum of three open trucks. And extra savings are assured since there is only one truck to maintain. Labor requirements are reduced and extra manpower is made available for street maintenance, sewer cleaning or other municipal assignments.

From small towns to the largest cities—in test after test—Gar Wood LOAD-PACKERS have consistently resulted in faster refuse collection schedules with lower operating costs. *Now, put modern refuse collection to work in your community.* Mail the coupon below for valuable free information about modernizing your refuse collection system—and cutting your collection costs—with new, modern Gar Wood LOAD-PACKERS.

## Gar Wood LOAD-PACKERS SAVE EXTRA DOLLARS

### EQUIPMENT PURCHASE COST

with open trucks | with LOAD-PACKERS




**UP TO 50% LESS**

### LABOR COST

**FROM 50% TO 66% LESS**

### MAINTENANCE COST

**UP TO 66% LESS**

3A117

Customer Service Department
Gar Wood Industries, Inc., 36014 Main St., Wayne, Michigan

Please send me full information about the new Gar Wood LOAD-PACKERS.

Name_____

Position_____

Address_____

City_____ Zone_____ State_____

GAR WOOD GW INDUSTRIES

**GAR WOOD INDUSTRIES, INC.**
WAYNE, MICHIGAN

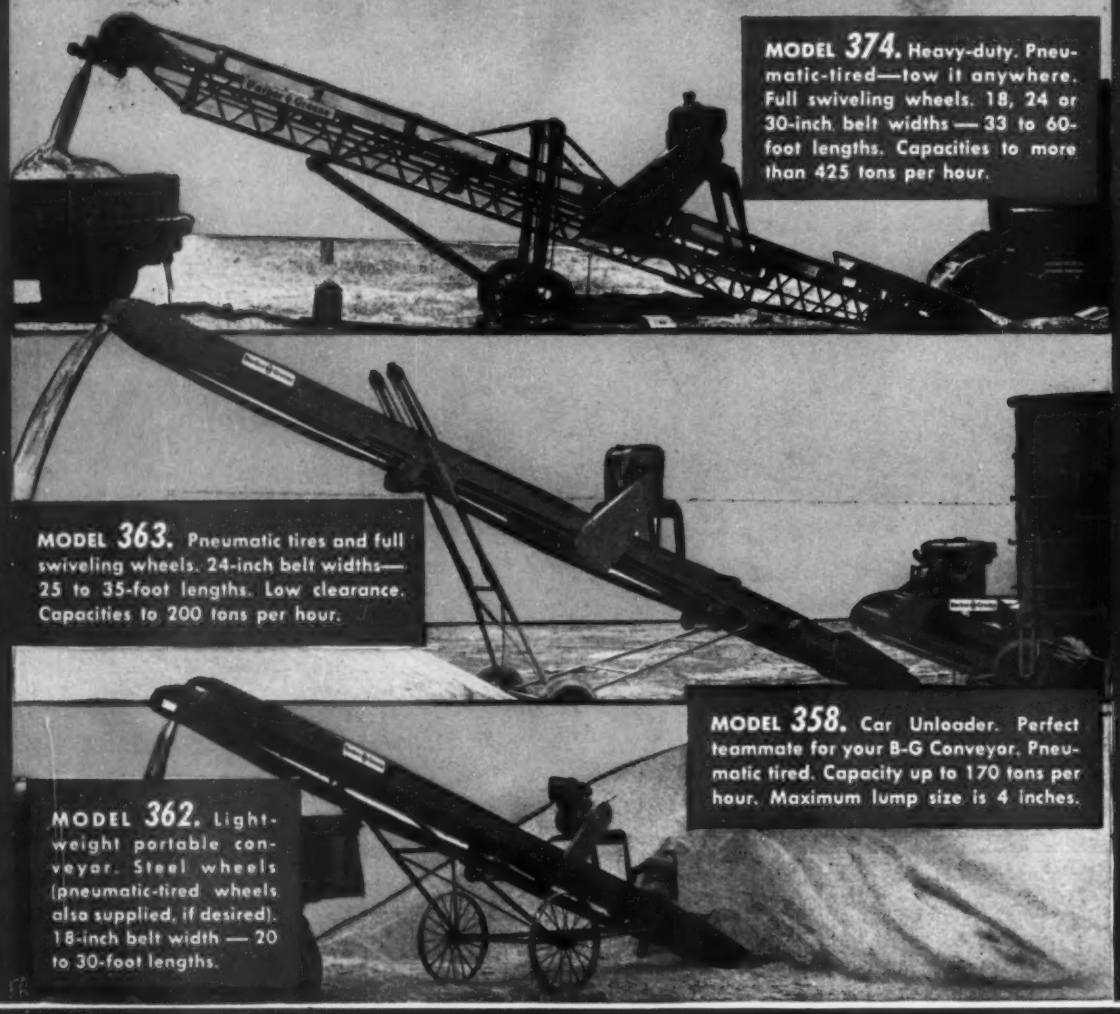
TRUCK EQUIPMENT: Dump Truck Bodies and Hoists, Winches and Cranes, Refuse Collection Units, Elevating End-Gates.
CONSTRUCTION EQUIPMENT: Excavators, Scrapers, Dozers, Ditchers, Spreaders, Fine-graders, Truck-Mounted Road Graders.

BARBER-GREENE HAS THE

# PORTABLE CONVEYORS YOU NEED

**Here are three standard B-G Portable Conveyors together with B-G Car Unloader . . . all available for prompt delivery from your B-G distributor. These skillfully designed and ruggedly built machines will—within the limits of their capacities—provide you with the most efficient and economical method of handling sand, stone, gravel, coal, coke, ashes, wet concrete, chemicals, bags and boxes.**

**In addition to the models shown, Barber-Greene also builds larger capacity portable conveyors. Why not check with your B-G distributor for complete information on portable conveyors?**



**MODEL *374.*** Heavy-duty. Pneumatic-tired—tow it anywhere. Full swiveling wheels. 18, 24 or 30-inch belt widths — 33 to 60-foot lengths. Capacities to more than 425 tons per hour.

**MODEL *363.*** Pneumatic tires and full swiveling wheels. 24-inch belt widths—25 to 35-foot lengths. Low clearance. Capacities to 200 tons per hour.

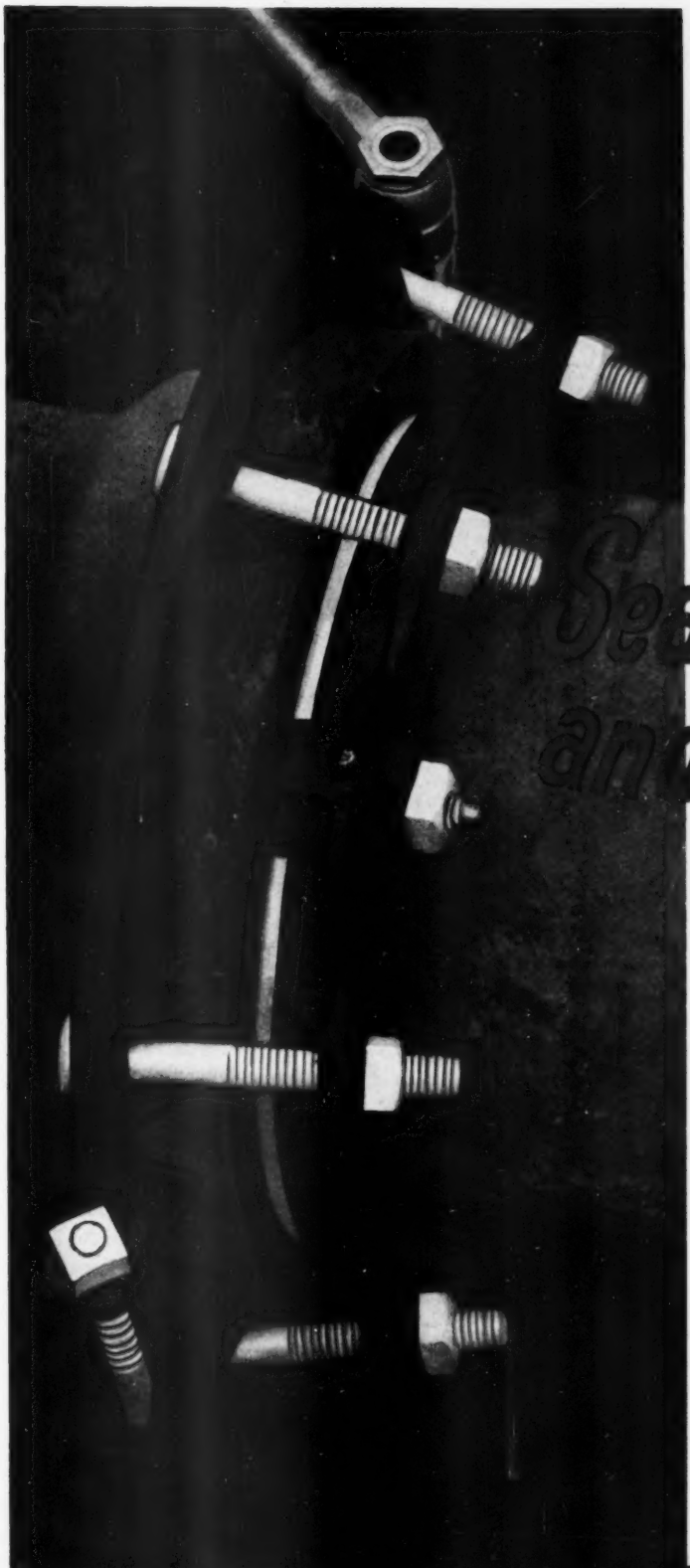
**MODEL *358.*** Car Unloader. Perfect teammate for your B-G Conveyor. Pneumatic tired. Capacity up to 170 tons per hour. Maximum lump size is 4 inches.

**MODEL *362.*** Lightweight portable conveyor. Steel wheels (pneumatic-tired wheels also supplied, if desired). 18-inch belt width — 20 to 30-foot lengths.

# Barber-Greene

B G

*Aurora, Illinois, U. S. A.*



# THE CLAMP WITH THE Sealed Gasket and 3/4" Bolts!

**SKINNER-SEAL Bell Joint Clamps stop bell and spigot joint leaks under pressure. Speedy one-man installation cuts repair costs.**

**Gasket is completely SEALED and protected; at the bell face by a Monel Metal Seal Band; at the spigot by hard, vulcanized gasket tip, acting as a plug. Equalized pressure forces gasket into every crevice in the joint, sealing the leak at its source. Sturdy malleable iron Compression and Anchor Rings—shaped and pressure-tested before shipping. Large 3/4" bolts. Plated or unplated. Malleable iron bolts furnished on special request.**

**Prompt shipment on rated orders!**

**M. B. SKINNER CO.**
*Est. 1898*
**SOUTH BEND 21, INDIANA**

**SKINNER-SEAL BELL JOINT CLAMP**

# PRAISE... FOR AMAZING NEW BRUSHCUTTING MACHINE

# H&R BRUSHMASTER®

" . . . our Brushmaster is doing a very clean, economical job . . . more so than can be done by manual labor . . . best method I have yet seen to overcome the brush menace."

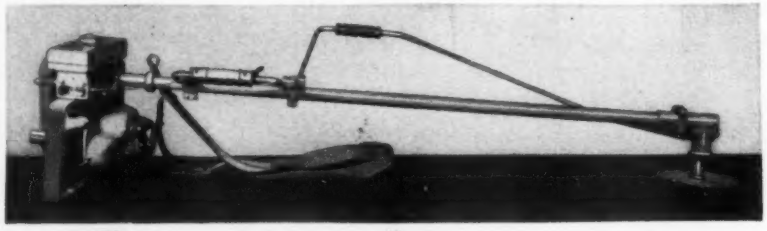
excerpts from letter, G. B. HALLETT,
Gen. Mgr., AROOSTOOK VALLEY RAILROAD CO.

**BRUSHMASTER®**
**does the work of 6 hand cutters..**
***faster, cheaper, better!***

## MACHINE MAGIC has entered the brushcutting field . . . .

- ONLY 35 LBS., EASILY CARRIED, OPERATED BY ONE MAN!
- DESIGNED BY FORESTRY EXPERTS . . . PRECISION ENGINEERED BY FAMOUS HARRINGTON & RICHARDSON, INC.

**Lightweight, rugged Brushmaster has proven by time study to be remarkably efficient. The air cooled 2-cycle motor is clutch controlled . . . free from vibration . . . and the operator is completely protected. Saw blade can be replaced in seconds. Clears brambles, vines, bush . . . all undergrowth . . . even saplings to 4" in diameter!**



**$398** *FULLY GUARANTEED*
**WRITE FOR FREE CATALOG**

Manufactured and sold in Canada by
H. & R. ARMS LTD., Drummondville, Quebec

**BRUSHMASTER SAW, INC.**
Subsidiary of Harrington & Richardson Inc., *Established 1871*
2905 West St., Keene, N.H.

Good Roads
MACHINERY

# MOTORIZED SCAVENGER

*Now!*
**A MOTORIZED SCAVENGER** for cleaning up all types of Debris and Rubbish including Bottles, Cans, Papers, Cartons, Leaves, Twigs, almost regardless of size, Wet or Dry, on Highways, Boulevards, Streets, Alleys, Parks, Picnic and Recreation Grounds, Golf Courses, Cemeteries, etc.

**GOOD ROADS MACHINERY CORP., MINERVA, OHIO**

# Greater usable hp!

Hauling on road construction assignments during the summer, this double-duty FWD is also equipped with push-frame and hydraulic hoist system to handle snow removal during winter months.

## . . . another advantage of FWD trucks for heavy-duty construction and maintenance jobs

With FWD's proper distribution of weight and true four-wheel-drive design, a greater percentage of engine horsepower is available for tractive effort. As a result, FWDs haul bigger loads . . . get through where other rigs fail . . . cut maintenance and service because there's less strain on engine and drive components.

For the whole story on FWD mechanical and operating advantages see your FWD dealer. He'll be pleased to give you the details, help you select the right model to meet your exact needs.

THE FOUR WHEEL DRIVE AUTO CO.
Clintonville, Wis.
*Canadian Factory*: Kitchener, Ont.

This FWD model HG "Maintainer" works through every season . . . handles more than 60 different assignments.

***Built by the makers of America's Foremost Heavy-Duty Trucks***

# High Speed ground crew

## Mows four times faster with International Super-A s

**MOWIN' 'EM DOWN.** The hard-working Super-A is typical of the International line of wheel and crawler tractors. Among them, there's sure to be an International that can save money and do more work per day on any job you can name.

**The main airline** field serving Savannah, Georgia, covers 2,800 acres of which 1,500 must be mowed.

It used to take a month to cut it once-over, mowing with low-speed units. Then the Savannah Airport Commission put two International Super-A tractors to work, and they do the same job in one quick week.

*"We bought these Internationals to reduce costs, and get a better-kept field with less manpower,"* says Airport Manager, Frank Lehardy.

Fast, handy International wheel tractors bring the benefits of more efficient operations to many municipal jobs . . . mowing down summer grass, sweeping up autumn leaves, dozing off winter snow . . . anything that calls for rugged, reliable "Power on Wheels".

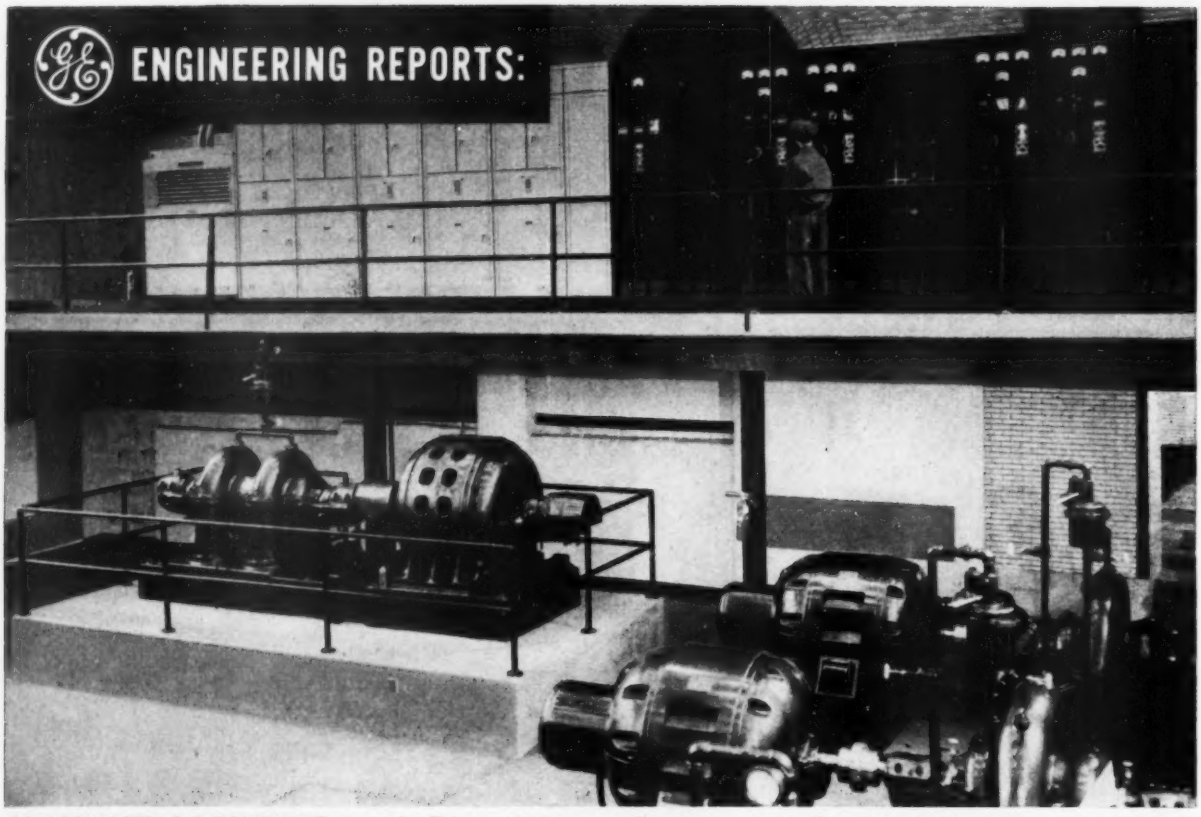
Let your International Industrial Distributor give you the details!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

INTERNATIONAL

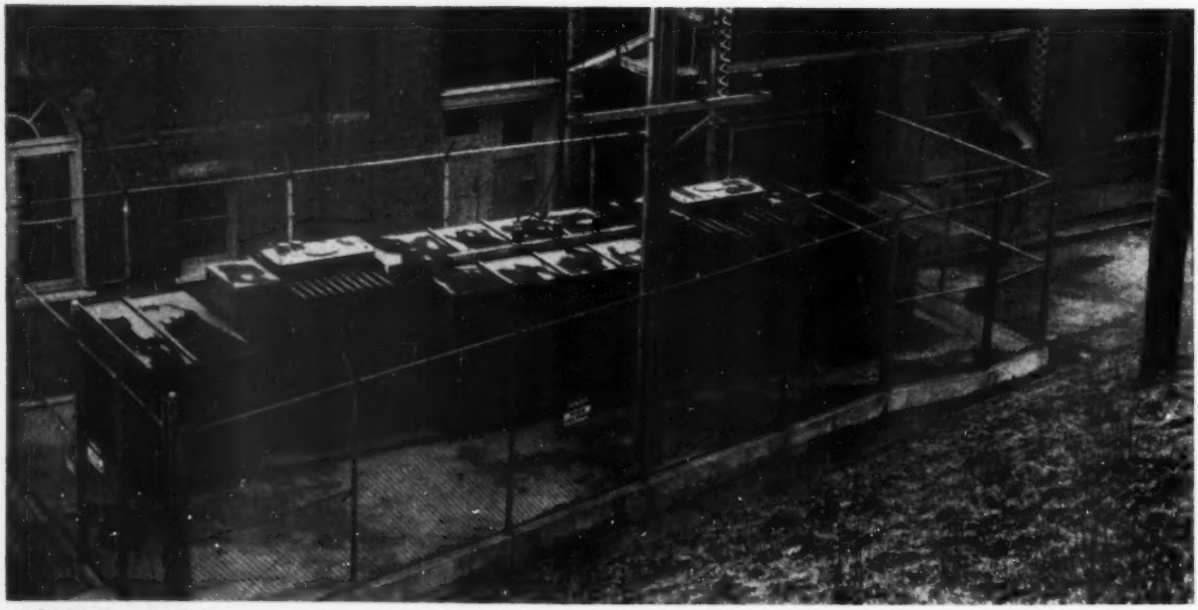
INTERNATIONAL HARVESTER

POWER THAT PAYS



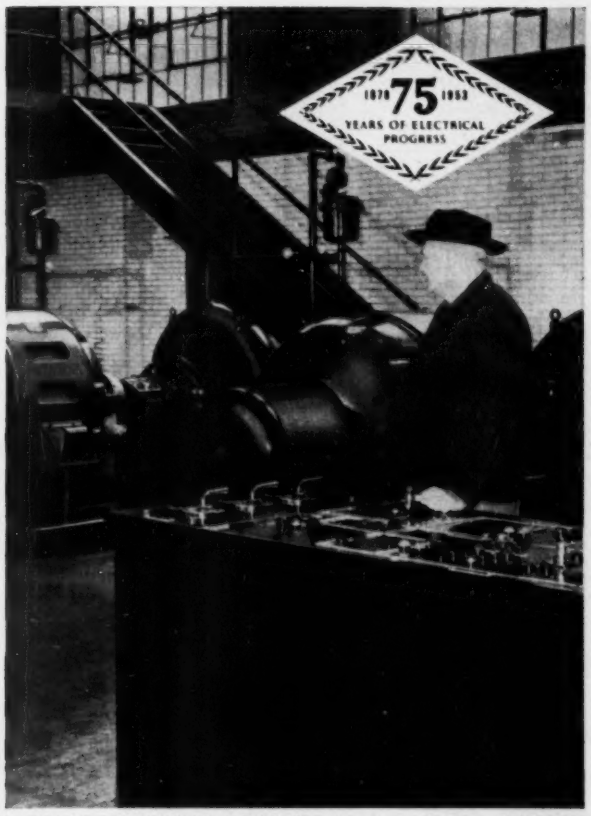

**CO-ORDINATED G-E EQUIPMENT** at main Erie station includes (bottom right) three 1000-hp 1200-rpm synchronous motors (two shown) driving DeLaval pumps rated 12,600 gallons per minute. Located on the balcony to save floor space are (r. to l.) metal-clad switchgear, Limitamp, compact load-center unit substations, and small-motor control center.

# Erie looks ahead—triples main



**INCOMING POWER** is stepped down at this 1500-kva G-E master unit substation from 13,800 volts to 2400 volts for economical high-voltage distribution. Substation comprises all equipment needed between utility line and plant circuits.

**PERSONNEL PROTECTION** is provided by this G-E metal-clad switchgear assembly. Circuit-breakers—of adequate interrupting capacity—are easily removable to simplify maintenance.




**CENTRAL OPERATING POINT** for the plant is this G-E control desk, combining push buttons, indicating lights, and selector switches. Desk is conveniently located in pump room.

# plant's water pumping capacity

## Thorough system engineering cuts operating, fuel and maintenance costs—will pay for itself in 5 years

Acting now to meet future water-supply requirements, Erie, Pa., recently expanded its pumping facilities. General Electric application engineers—working closely with the city's engineering staff, Chester Engineers of Pittsburgh, consultants, and the Dravo Corporation's Machinery Division, contractors—co-ordinated the electric equipment for a modern, efficient system to replace old steam-driven units in the city's main plant.

**Results:** They tripled pumping capacity—from 20 to 60 mgd. They saved four-fifths the space formerly used. Five men can now operate the station instead of forty. In two years of 24-hour-per-day operation, no repair whatsoever has been needed, according to Supt. Maurice McMahan. And the cost of the installation will be completely repaid within five years by operating, fuel and maintenance savings.

This kind of G-E application engineering skill can help make your community's water-supply program pay off. For best results, call in your G-E Apparatus Sales representative early in the planning stage.

### HOW YOU CAN ACT NOW FOR MORE WATER TOMORROW

Arouse public interest through showings of the new full-color movie, "Pipeline to the Clouds." It's part of G.E.'s *More Power to America* Water Supply Program. For more information, write on your letterhead for Bulletin GEA-5555 to General Electric Co., Section 666-77, Schenectady 5, N. Y.

**Engineered Electrical Systems for Waterworks**

**GENERAL ELECTRIC**

Metcalf
UNIFORM
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Standard fabrics for over eighty years
WHEN BUYING A UNIFORM . . . LOOK FOR THE TRADE-MARK ON THE BACK OF THE FABRIC
UNIFORM CLOTH
METCALF BROS. & CO., INC.
THIS SEAL IS YOUR GUARANTEE OF UNIFORMITY IN COLOR AND SERVICE.
386
Sample Brochure Upon Request
METCALF BROS. & CO., INC.
FOR UNIFORM SATISFACTION

## Austin-Western Tandem Roller

# SURFACE SMOOTHNESS *is its business*

• Engineered from the ground up for precision operation, the Austin-Western Tandem Roller with its—

**Variable Weight** — **Rigid Box Frame**
**Smooth Power** — **Hydraulic Steer**
**More Visibility** — **Less Overhang**
**More Clearance**
**Convenient Single or Dual Controls**

meets all specifications for high-type surfaces . . . performs in a manner that satisfies the most exacting engineer.

Austin-Western also makes 3-Wheeled Rollers. Catalogs are yours for the asking.

**Austin-Western**
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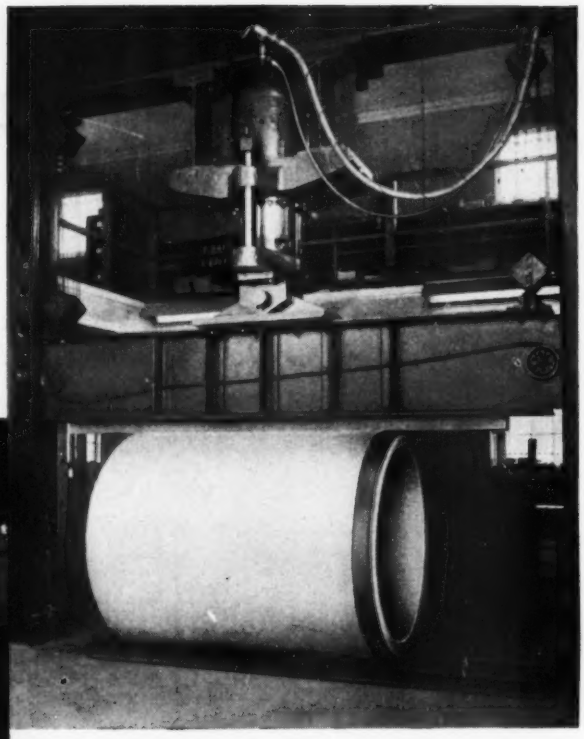
BALDWIN BLH LIMA-HAMILTON
Construction Equipment Division

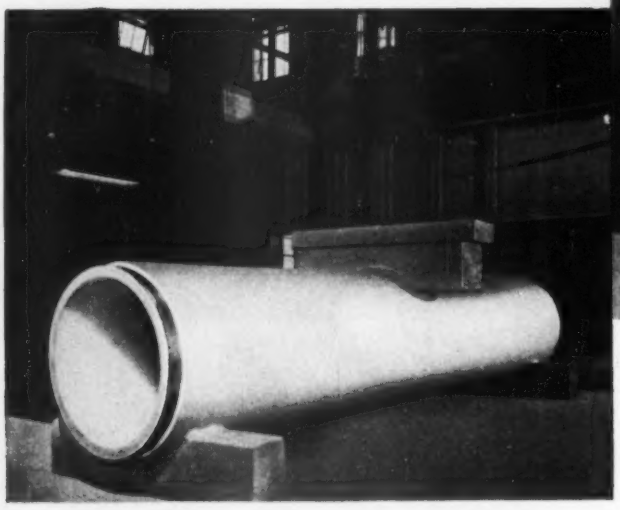
*Manufactured by*
**AUSTIN-WESTERN COMPANY**
*Subsidiary of Baldwin-Lima-Hamilton Corporation*
**AURORA, ILLINOIS, U.S.A.**

# *test after test assures the best*

# IN LOCK JOINT CONCRETE PRESSURE PIPE



▲ *Three edge bearing test in 300,000 pound capacity testing machine.*



◀ *Determining a pipe's beam strength in 300,000 pound capacity testing machine.*

Do you have conclusive proof of the fundamental characteristics of the pipe you intend using in your next water works project? Are you certain of its advantages? Do you recognize its limitations?

• • •

In Lock Joint's laboratory at Wharton, N. J. all guess work has been eliminated. Here, Lock Joint Pipes of all types and designs are tested to determine the exact extent of their ability to withstand back loads, beam loads and internal pressures. The most efficient modern equipment in the hands of highly trained personnel is used to give a tangible, practical demonstration of the high quality built into every type of Lock Joint Pipe.

• • •

These constant tests of our products are your assurance that, in its field, no finer pressure pipe than Lock Joint can be produced. Built in diameters from 16″ upward and designed for any pressure common to water works practice, these pipes will serve you unfailingly for generations.

SCOPE OF SERVICES—*Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains 16″ in diameter or larger, as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.*

**LOCK JOINT PIPE COMPANY**

*Established 1905*

**P. O. Box 269, East Orange, N. J.**

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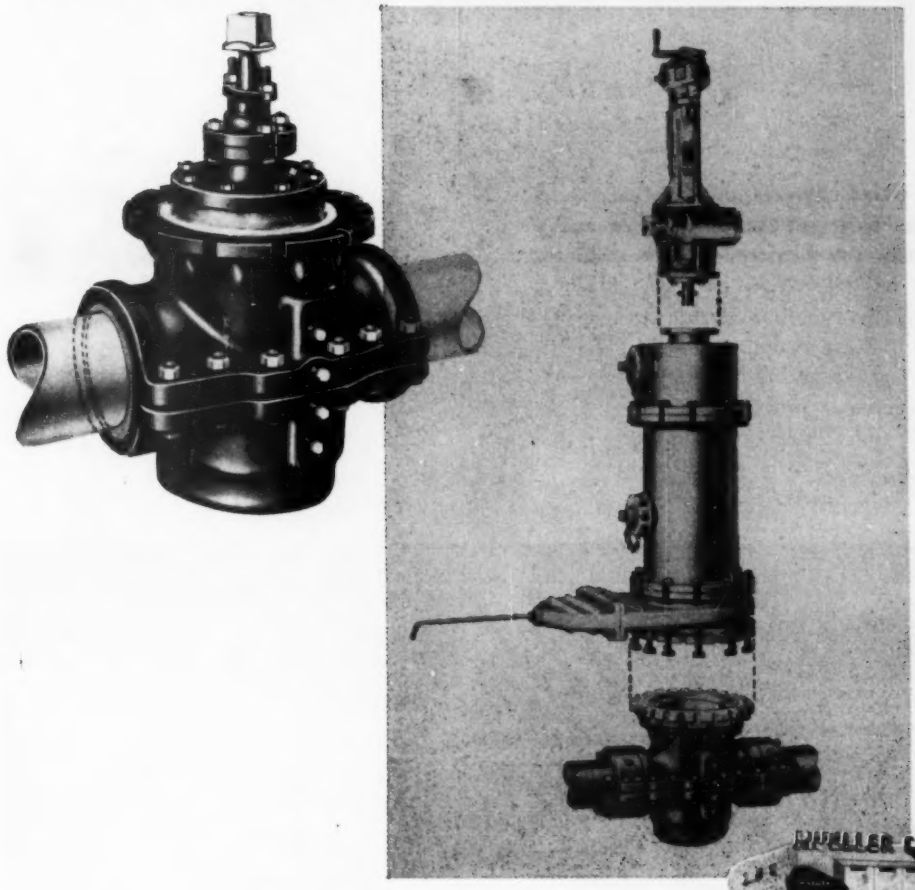
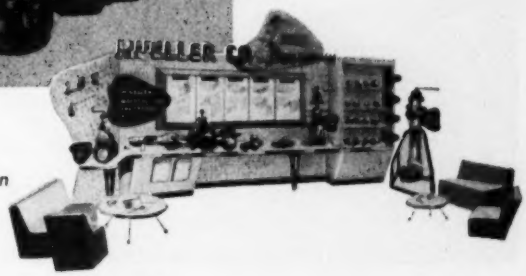
LOCK JOINT Reinforced Concrete PRESSURE PIPE

# MUELLER®





*Complete Inserting Valve installation shown in interesting translite presentation*

## Coming to Grand Rapids?

Drop in and see the new Mueller Inserting Valve and Equipment Exhibit at the AWWA Convention. Booth 102-103.

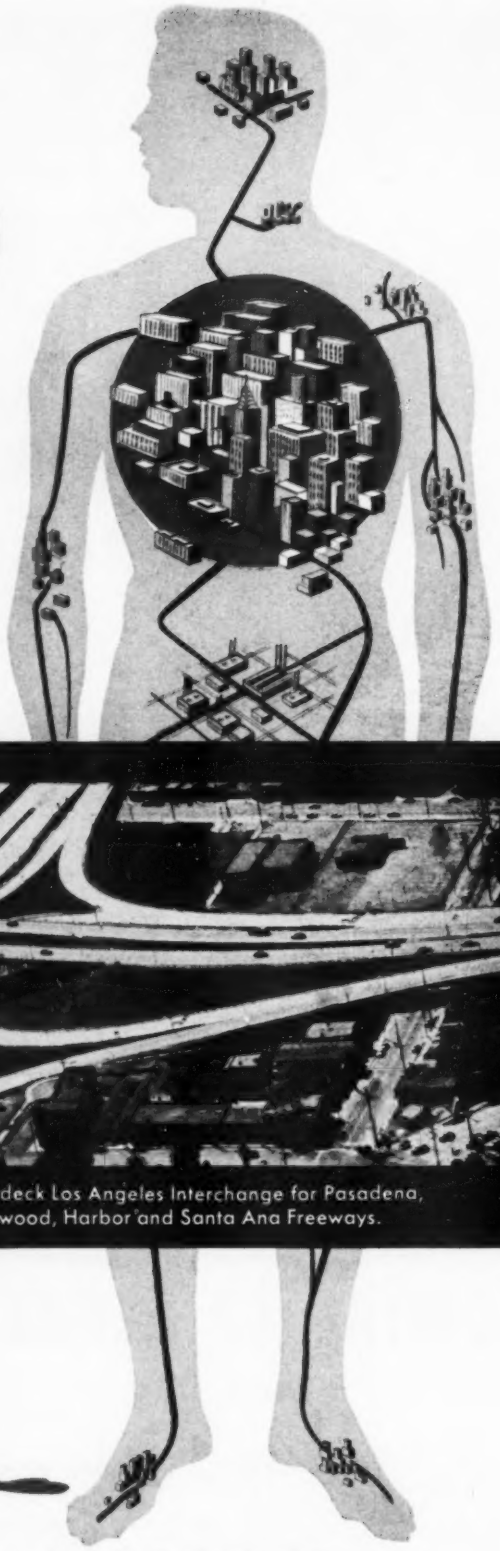
**MUELLER CO.**

*Dependable Since 1857*

MAIN OFFICE & FACTORY DECATUR, ILLINOIS

# Is your city suffering from

# Arterial Sclerosis?



**Most cities are!** Tremendously increased auto traffic has clogged the arteries of many cities. The only sure cure for this difficult problem is wise city planning *now*.

Fairchild Photomaps and Contour Maps can help by placing every existing building, elevation, landmark, etc., in your city *right on your desk*... enabling street and freeway routing decisions to be made quickly, accurately, and economically.

**No Arterial Sclerosis here!** Four-deck Los Angeles Interchange for Pasadena, Hollywood, Harbor and Santa Ana Freeways.

In 1953, 12 more progressive American cities started benefiting from Fairchild surveys.

*If you would like complete information on Fairchild techniques, send for the informative booklet,* **"Focusing on Facts"**

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AERIAL SURVEYS INC.

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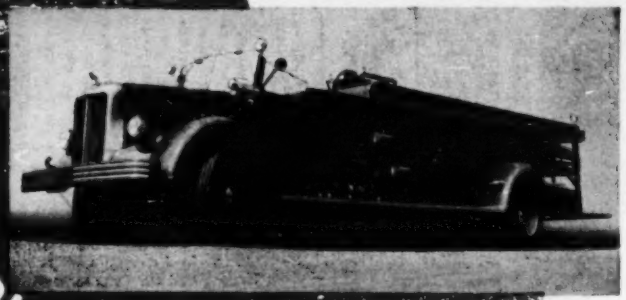

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**Mack**
**FIRE APPARATUS**

MACK MANUFACTURING CORPORATION

...nearly branches... ...principal cities for service and parts... ...k Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS ... SQUAD AND HOSE CARS ... 65', 75' and 85' AERIALS, ... AND COMBINATION LADDER TRUCKS

LOWEST COST PIPE INSTALLATION...

Send COUPON Today!

Hydrauger Corp., Ltd.
681 Market St., San Francisco, Calif.
Please send, without obligation to me, the HYDRAUGER BOOKLET which shows relative costs and speeds of BORING as well as specifications of various Hydrauger models.

NAME
ADDRESS
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2" to 24" BORES · Up to 250' long.

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By U. S. Pat. Offs.

UNDER STREETS
UNDER FREEWAYS
UNDER GARDENS
UNDER PAVEMENT

OPEN HOLE

HY-25A

AVOIDS EXCESSIVE TRENCHING

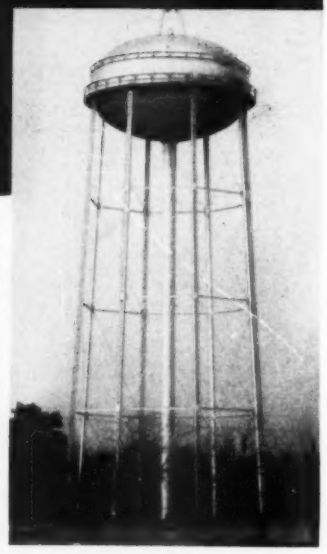
Hydrauger bored holes for pipe installation invariably reduce costs 80% to 90% by eliminating trenching and back-filling to say nothing of man-hour labor savings and safety to highway traffic.

HYDRAUGER CORP. Ltd.
681 Market Street
San Francisco, California

*Earth Boring Tool

For *Economical* Maintenance

COLE ELEVATED TANKS



• Design plays an important part in tank maintenance. Experienced engineers design Cole tanks for easy access and minimum maintenance costs, as well as for permanence, safety, and dependability. Send us your inquiries for tanks 5,000 to 2,000,000 gallons—stating capacity, height to bottom, and location.

*Write for the latest Cole catalog—"TANK TALK"*

*Established 1854*

R. D. COLE MFG. CO.
NEWNAN, GEORGIA

ELEVATED TANKS • VESSELS • CYLINDERS
TOWERS • BINS • STANDPIPES

ANTHRAFILT
*(Reg. U. S. Pat. Off.)*

A Filter Medium For All Purposes

*Has outstanding advantages over sand and quartz media:*

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

*Additional information, recommendations and quotations furnished upon request by*

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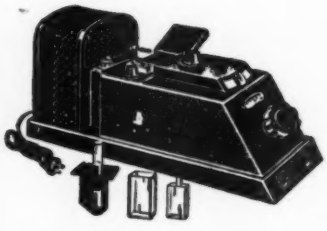
KLETT SUMMERSON
ELECTRIC PHOTOMETER

*Adaptable for Use in Water Analysis*



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

KLETT MANUFACTURING CO.
179 East 87th Street New York, N. Y.

# THE Ferri-Floc WAY IS A BETTER WAY!!

## You Can Expect These Advantages With Ferri-Floc-

1. Rapid Floc Formation
2. Taste and odor control
3. Color removal
4. Ease of operation
5. Bacterial removal
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7. Turbidity removal
8. Economy

**Ferri-Floc has the ability to coagulate waters and wastes over wide PH Ranges and will provide excellent floculation in softening systems.**

*Free Literature!*

—Send card or letter to Tennessee Corp., Grant Building, Atlanta, Georgia.

**SULPHUR-DIOXIDE is effectively used for dechlorination in water treatment and to remove objectionable odors remaining after purification.**

**COPPER SULPHATE will control about 90% of the micro-organisms normally encountered in water treatment plants more economically than any other chemical.**

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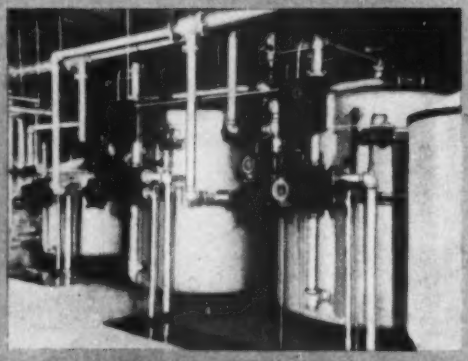
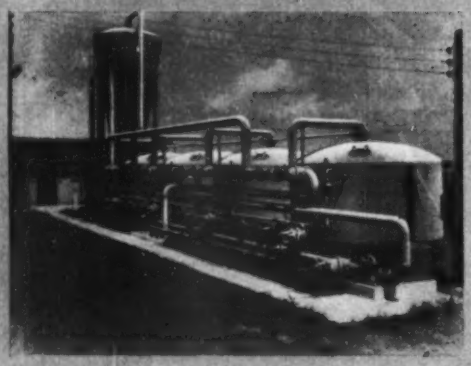
# 4 STEPS TO BETTER WATER

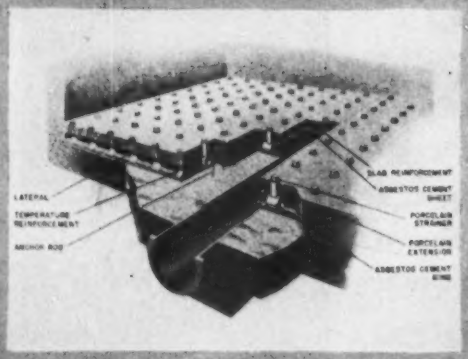
**1. PERMUTIT PRECIPITATORS**—For coagulation of turbid or colored waters and for softening hard waters. Uniform upward filtration through sludge blanket saves from 10% to 40% in chemicals . . . up to 50% in space and 75% in time. Available in horizontal or vertical designs, in single units or batteries, with unit capacities up to 10,000,000 gpd.



**2. PERMUTIT ZEOLITE** (Ion Exchanger) **WATER SOFTENERS**—Simplest method of removing hardness to any required degree. Completely automatic operation assures uninterrupted service and reduces operating costs. Supplied in single units or batteries to fit all requirements.



**3. PERMUTIT SPIRACTORS®**—New principle—*catalytic precipitation*—shortens detention time, eliminates sludge disposal, saves steel, floor space. No moving parts. Total reaction time is 8 minutes.




**4. PERMUTIT MONOCRETE UNDERDRAINS**—Rugged monolithic construction. Non-corrodible, easy to install. Large laterals and header assure uniform collection and distribution of water. Laterals are formed by specially designed inflatable rubber tubes which are removed after the concrete is set.

For full information on these and other types of water conditioning equipment, write to The Permutit Company, Dept. AC-7, 330 West 42nd Street, New York 36, N. Y., or The Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

**PERMUTIT®**

WATER CONDITIONING HEADQUARTERS FOR 40 YEARS

# this "whirling tube" doesn't clog!

This "whirling tube" is inside the amazing Fairbanks-Morse *Bladeless* Impeller Pump . . . just a "whoosh" and fibrous material goes right through.

Fairbanks-Morse engineers designed this impeller without blades or projections that catch and hold trash—it's truly non-clog. Even a man's complete coveralls went through a 4-inch pump without clogging!

See your Fairbanks-Morse Distributor or Local Branch Office about this *Bladeless Impeller* Pump . . . or write Fairbanks, Morse & Co., Chicago 5, Illinois.

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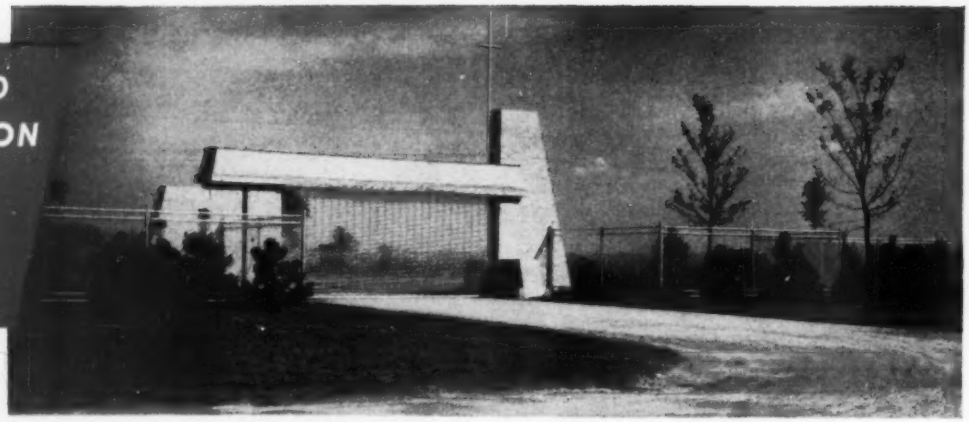
*a name worth remembering when you want the best*

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY
RAIL CARS • HOME WATER SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS

DIGNIFIED PROTECTION TO ANY AREA OR PROPERTY



NICHOLS NEVER-STAIN TRADE MARK

# ALUMINUM *Chain Link Fencing*

★ RUST-PROOF
★ MAINTENANCE-FREE
★ NO PAINTING
★ FIRST COST IS LAST COST
★ LONG LASTING BEAUTY

No other fence in the price range of "Never-Stain" ALUMINUM CHAIN LINK fencing can offer these maintenance economies. Here is a fence with practically no upkeep whatsoever that adds beauty and protection to any area for years to come. Available in 6 and 9 gauge aluminum wire — 36" to 120" in height. Aluminum barb wire also available.

Write Dept. AM for the name of your nearest Nichols franchised ALUMINUM CHAIN LINK FENCE erector.

NICHOLS WIRE & ALUMINUM CO.

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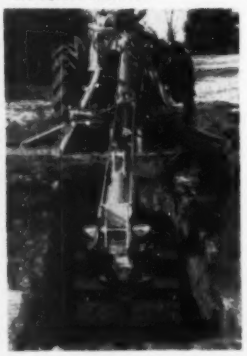
## NEW SHAWNEE HYDRO-CLAM

### THE ANSWER TO SPOT EXCAVATIONS

**Digs Straight Down**

Hydraulic pressure on both halves of the clam provide clean, fast digging . . . it literally "bites" a jaw full of earth (almost a third-yard) and lifts it effortlessly to a waiting truck. All four corners are square and neat.



Note full width digger and clean, square corners at both ends.

**FEATURES:**

Tremendous loading ability — 4⅝ tons closing pressure on clam • Maximum digging depth of 8⅛' • Adjustable side outriggers for sloping ground and extraordinary stability • Self leveling clam assembly retains ½ yard load raising to dumping height clearance of 7⅛' • 12' reach behind main frame with 150° operating arc for digging and dumping • Clam assembly can be locked for operation as a backhoe • Clam method of digging practically eliminates severe strain on main frame and tractor • Removes from tractor in less than 15 minutes • Will dig excavation from side when obstructions prevent end digging.

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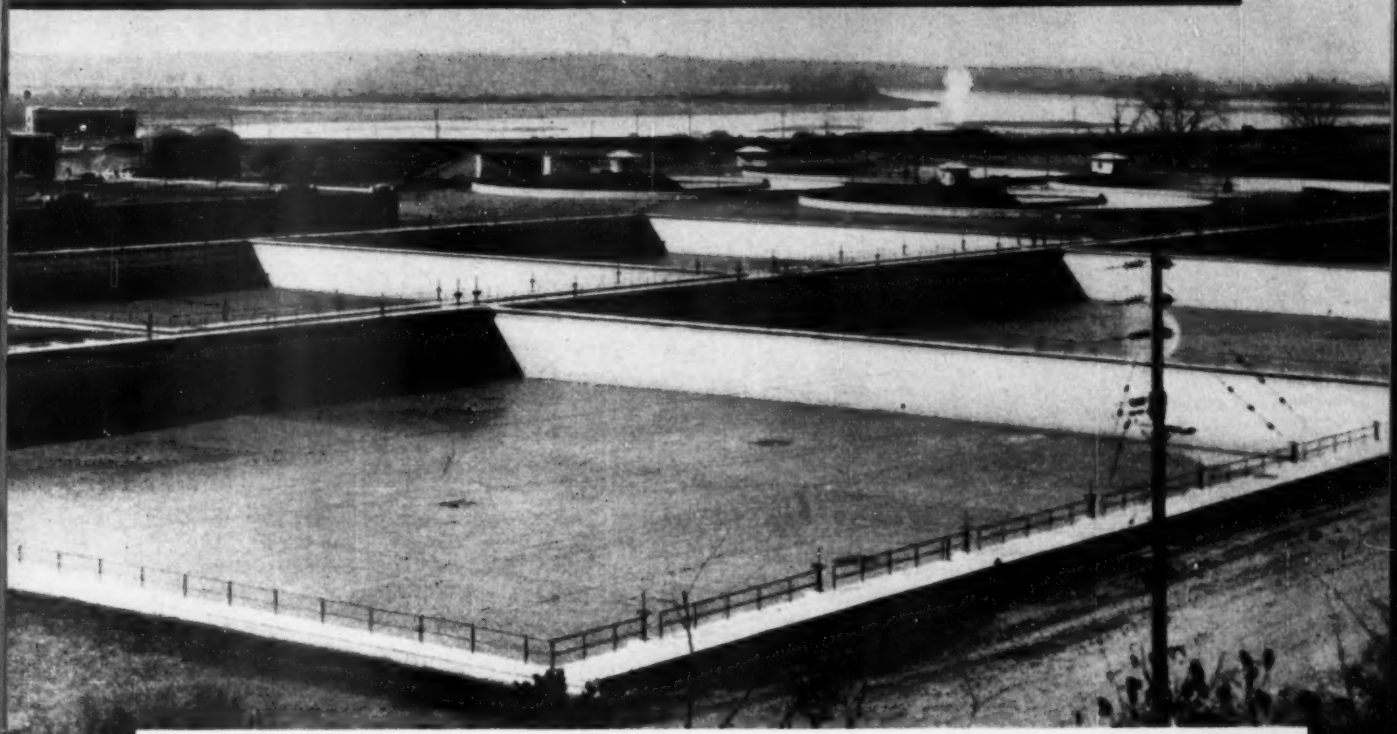
IN WATER AND SEWAGE PROJECTS

# There's more to CORROSION than meets the eye



## Sometimes VISIBLE... Often HIDDEN... Corrosion Strikes Every Installation

This year, the nation's water and sewage works will pay millions of dollars for needless losses created by corrosion... *yet much of this corrosion may never be discovered* until it's too late to protect—and time to pay!

Corrosion is readily detected as rust layers or failing paint on exposed surfaces. But, by far, the major costs of corrosion come from hidden areas—where only minute inspections and constant care can prevent costly failures.

### YOU LOSE IN A "WAITING GAME"

Don't wait for rust or other visible signs to appear. Visible or hidden, corrosion will destroy costly equipment... increase maintenance costs... and contaminate vital water supplies, thereby creating needless wastes that will cost you thousands of dollars.

### YOU CAN PREVENT NEEDLESS WASTE

Check now for corrosion's presence. Double-check areas that may be vulnerable to *hidden corrosion*. If you would like help, an AMERCOAT Field Engineer will gladly assist you in making a thorough analysis. There is no obligation.

### What is AMERCOAT?

AMERCOAT is a method of corrosion control. Not just a single product, but a complete LINE of coatings, individually formulated to solve or control specific industrial corrosion problems.

FOLLOW THE LINE OF *least* RESISTANCE... PROTECT WITH *Amercoat!*

**AMERCOAT CORPORATION**

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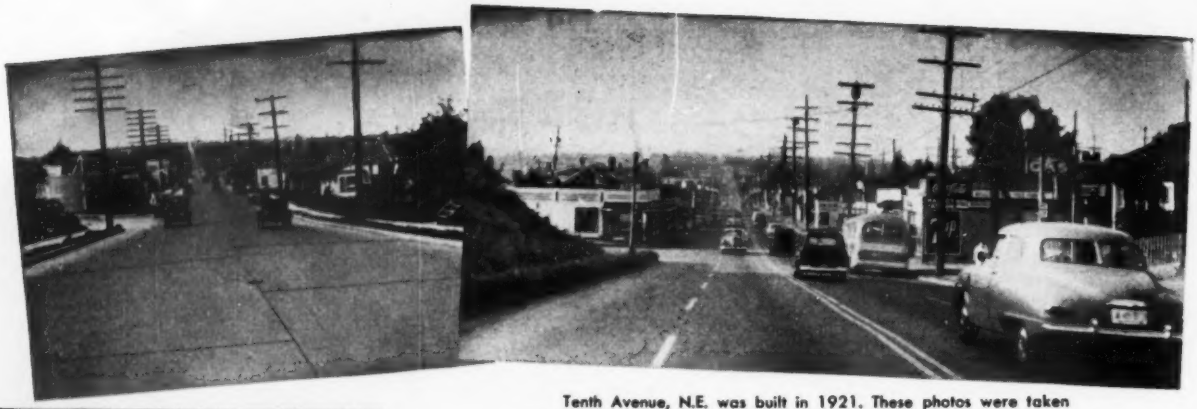
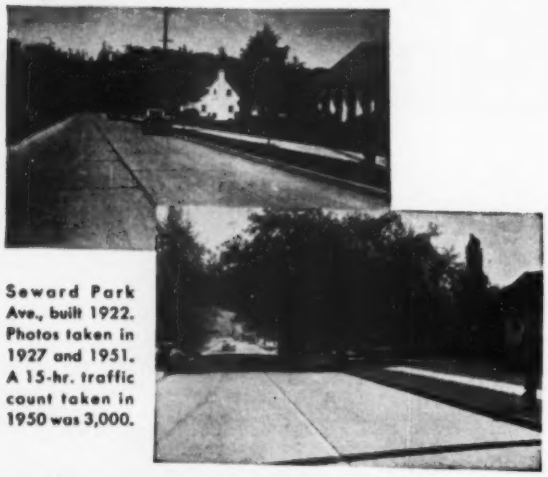
CHICAGO, ILL. NEWARK, N. J. JACKSONVILLE, FLA. DALLAS, TEX.



Tenth Avenue, N.E. was built in 1921. These photos were taken in 1924 and 1951. A 15-hour traffic count in 1950 was 18,500.



Seward Park Ave., built 1922. Photos taken in 1927 and 1951. A 15-hr. traffic count taken in 1950 was 3,000.

W. 70th St., built in 1922. Photos were taken 1924 and 1951. 15-hr. traffic count in 1950 was 2,500.

# Here today—*and still here tomorrow* . . . that's the story of Seattle's *CONCRETE* Streets

Seattle has more square yards of concrete streets per capita than any other city in America with more than 100,000 population. There's a reason: city records, covering a 25-year period (less than the age of some of the streets shown here) reveal that concrete streets cost less than one-tenth of a cent per sq. yd. per year to maintain. Two other types cost 5½ and 7 times more.

Like Seattle, hundreds of cities have found that concrete streets give dependable, ***low-annual-cost*** service, often for 25, 30, 35 years and longer. Concrete streets are "*here today—and still here tomorrow.*"

Today concrete pavements are even more durable because of improvements in engineering design, in materials and in construction methods. Concrete is moderate in first cost, costs less to maintain and lasts longer. Result: ***low annual cost***. Concrete is safer too. Wet or dry, its uniformly high skid resistance permits quick, sure stops. Its light color enables you to see better at night—and saves on street lighting costs as well.

**PORTLAND CEMENT ASSOCIATION**

**33 West Grand Avenue, Chicago 10, Illinois**

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

Ninth Avenue N. was built in 1924. These photos were taken in 1926 and 1951. 15-hour traffic count in 1950 was 5,000.

## ...PAYLOADER PAYS...

EVERYBODY concerned is pleased with the back-filling job John Rooff & Sons' "PAYLOADER" tractor-shovel is doing on this 12" water main installation. The contractor likes the 500 feet of daily progress being made . . . the water department knows it is getting a good solid back-fill . . . the highway department is sure the "PAYLOADER" will not damage the pavement.

Dig! Load! Backfill! Stockpile! Lift! Carry! Strip! Push! Pull! The "PAYLOADER" does *all* these jobs. That is why it is one of the busiest machines on any project — and the most in demand. There are eight sizes of "PAYLOADERS," also a choice of four-wheel, rear-wheel or front-wheel drive to best fit your needs.

"PAYLOADER" Distributors — some 200-strong in the U. S. and Canada — are ready to serve you with their modern parts department and service shops manned by experienced personnel. From ANY angle, it will pay to buy a "PAYLOADER" tractor-shovel — a *complete* unit built by the tractor-shovel pioneer, The Frank G. Hough Co., 710 Sunnyside Avenue, Libertyville, Illinois.

### A SIZE FOR ANY JOB

Full information on any "PAYLOADER" model is yours on request:
Four-Wheel drive Models HM — 1½ yd. and HR — 1 yd.;
Rear-wheel drive Models HY — 1¼ yd., HFH — 1⅛ yd., HF — ¾ yd., HE — ½ yd.;
Front-wheel drive Models HAH — ½ cu. yd., HA — 12 cu. ft.

**PAYLOADER®**

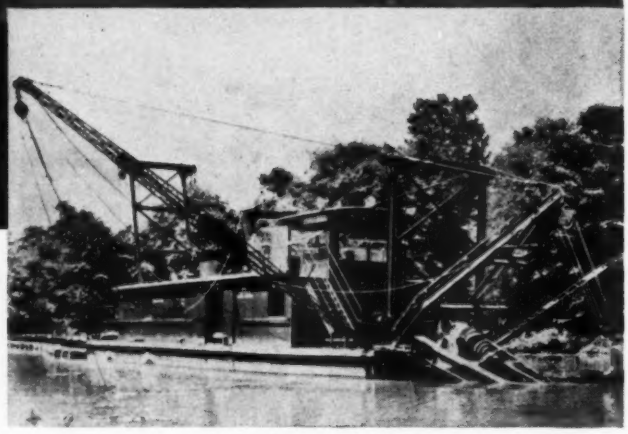
SAY "HUFF"

THE FRANK G. HOUGH CO. • Since 1928

"Indian Lake" dredge, powered by 8 cylinder, 4-cycle Superior Diesel rated at 260 HP.

# Suction Dredges powered by SUPERIOR DIESELS

**Keep boat channels clear and build permanent land fill for Ohio's Division of Parks.**



"Portage Lake" dredge powered by supercharged Superior Diesel developing 450 HP.

The development of Indian Lake recreational area at Russels Point, Ohio, required the removal of silt deposits to clear boat channels and overcome shoreline muddiness resulting from agitation of the silt.

In 1948 an American Steel suction dredge powered by a Superior Diesel was placed in service. Since that time the Superior Diesel has performed dependably and without interruption during thousands of hours of severe, continuous operation during each season, with negligible maintenance costs.

Park Manager Colvin comments, "The Superior has never given a minute's trouble—in fact, the performance of this unit led us to purchase another of the same model to power a new dredge for Portage Lakes."

The Portage Lakes dredge is now in operation—its task is to move *more than a half million yards* of silt to clear the lakes. The pump, driven by its supercharged 4-cycle Superior Diesel handles 1500 to 2000 yards each working day.

Captain Herbert Lewellin, who is in charge of dredge operations at Portage Lakes, says, "Our Superior engine assures us dependable, fast starts and gives excellent performance under any load conditions. We have never had a bit of trouble with this power unit and I can also say that during my entire 37 years of dredging, I have never worked with an engine I like better."

That's the kind of service you can expect from Superior and Atlas Diesels regardless of the way you use them—for dredging, propulsion, power generation, or wherever else you need dependable engines. Write for full details on any kind of diesel engine application—there's a Superior or Atlas Diesel for every power need.

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# LOOK JOE! SAW CONCRETE & ASPHALT WITH A... Clipper® CONSAW SAVES-

...UP TO 50% on REMOVAL TIME

...UP TO 50% on REPLACEMENT COSTS

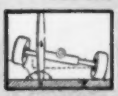
The photos below illustrate typical concrete and asphalt removal practice now being employed by hundreds of Utilities, Municipalities, Contractors and Maintenance Crews in Streets, Floors and Sidewalks. The benefits include lower maintenance costs, lower installation, repair and replacement costs.

## CUT COSTS by Sawing Contraction Joints—Trench and Patch Openings in Concrete & Asphalt

Save up to 50% in labor and material. Saw repair patches—water, gas, sewer and air line trenches in floors, streets, walks, highways. Save too, by sawing contraction joints in floors and highways...eliminate costly hand forming and spalling.

"4 OUT OF 5" BUY CLIPPER CONCRETE SAWS. Three-Point Suspension holds the blade straight and true in the cut—eliminates binding—twisting—drifting—sidewear and friction. The patented water application assures adequate coolant at all times—increased blade life and speed. Perfect balance and Dashboard Controls for operating ease and maneuverability.

**Experience Proves a Concrete Saw Must Have These Clipper Features for MAXIMUM ECONOMY**



3-POINT SUSPENSION

WATER SPRAY SYSTEM

INSTANTLY MANEUVERABLE

## FREE TRIAL ON YOUR JOB!

This unqualified Clipper guarantee of satisfaction is backed by Nearly 20 Years of world-wide experience, the ability to select the finest materials and the "know-how" to put them together. ORDER TODAY...on FREE TRIAL. Discover for yourself how Clipper will increase your profits!

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## ...by the ORIGINATORS OF CLIPPER MASONRY SAWS

...the First and Only saw in the world that will cut every masonry material regardless of size and hardness. Clipper outperforms them all for ONLY Clipper is "CONVERTIBLE" and has the Exclusive-Patented Features for **flexibility.** A Clipper model to fit any job—any budget. Sold on FREE TRIAL... Priced from $265.

**MODEL C-130—One of 5 Models—Gas or Electric Powered. From $465. up.**

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...guaranteed to..."Provide the fastest cut...at the lowest cost...with the greatest ease!" Clipper alone can supply every necessary metal bond... in over 36 specifications.

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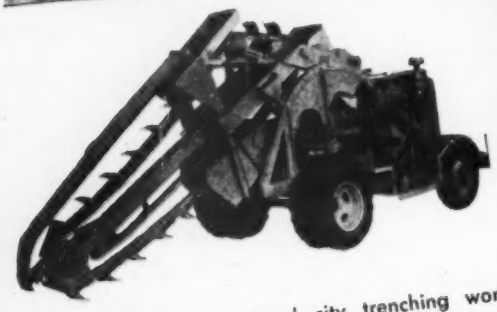
# rubber-tired 12.6 m.p.h. TRENCHMOBILE®



On widely scattered city trenching work, Parsons rubber-tired 88 Trenchmobile drives anywhere around town at road speeds up to 12.6 m.p.h. A job 6 miles away can be started in less than 30 minutes from "now". It gives you low-cost, one-man trenching on gas and water mains, extensions, service connections . . . underground cables, lighting, sprinkling systems for parks, golf courses, airports . . . drainage, pipe reclamation, building footings, etc. It will pay you to get all the facts. See your Parsons distributor, or write us.

Send to: PARSONS COMPANY, Newton, Iowa

for ☐ specifications ☐ bulletin on 88 Trenchmobile

NAME .....

TITLE .....

STREET .....

CITY, STATE ..... CP377AH

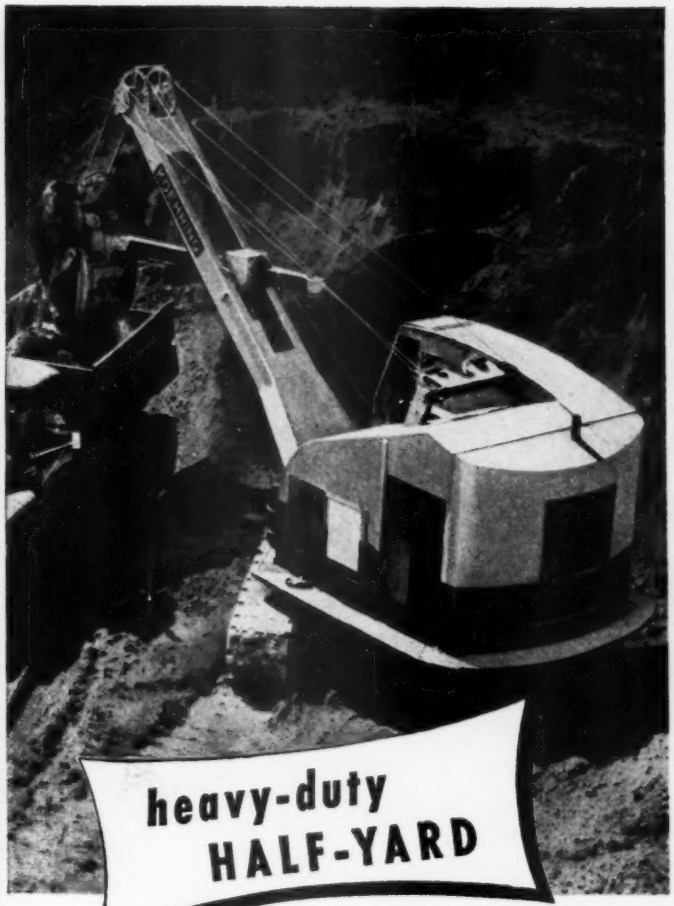
- **Drives anywhere at speeds up to 12.6 m.p.h.,** automotive steering, truck-type hydraulic brakes.
- **Digs 8 or 12 in. wide, in depths up to 5 ft.,** wide range of digging feeds up to 17 ft. per min.
- **Undercuts sidewalks, curbs, gutters, mains,** makes vertical set-ins . . . has hinged crumber.
- **Sloping ladder boom has positive down crowd,** starts cut fast, maintains grade in hard soils.
- **Dual-purpose friction clutch** drives bucket line, automatically protects against shock loads.
- **High-carbon cast steel buckets** have self-sharpening, easy-in, easy-out "Tap-In" teeth.
- **Shiftable, reversible belt conveyor** discharges spoil to either side, dodges side obstructions.
- **Hydraulically-controlled backfill blade** (optional) doubles Trenchmobile's usefulness.
- **43.6 h.p. gas engine,** and all main gearing enclosed in oil, assure steady, low-cost operation.

**PARSONS**

**COMPANY • NEWTON, IOWA**

*(Koehring Subsidiary)*

Also: 5 larger Trenchmobiles® . . . 2 wheel-types, 3 ladder-types, full crawler mounted



## heavy-duty HALF-YARD

Combining heavy-duty stamina with big work capacity, this Koehring ½-yard 205 is readily adaptable to all kinds of city excavating, trenching, lifting and material-handling jobs. For example . . .

On shovel work, its compact design and short tail swing lets this ½-yard handyman maneuver into tight quarters, work close to buildings and poles. When your schedule calls for sewers and water main excavations, it's readily convertible to heavy-duty hoe . . . digs 17 feet-9 inches below tracks. As a heavy lift crane, it has a load capacity up to 10 tons. Conveniently converts to dragline, clamshell or pile driver, as your program requires. Works on crawlers, or travels around town at speeds up to 35 m.p.h. on rubber-tired truck mounting.

For full details on its many exclusive mechanical features, see your Koehring distributor . . . or write to us for illustrated 28-page catalog. Other heavy-duty sizes up to 2½ yards . . . lift capacities to 79½ tons.

## portable BITUMINOUS MIXER

As a portable unit mounted on pneumatic tires, this versatile Kwik-Mix Bituminous Mixer is easily towed to the job, gives you "curb service" mixing anywhere around town. Handles direct pouring on street patch work, loads wheelbarrows . . . or with tower attachment (above) it stockpiles materials or loads batch directly into trucks. 10 cu. ft. size has 7'-9" overhead discharge . . . 14 cu. ft. size with tower loader has 8'-9" discharge height. Both sizes also are readily adapted as stationary overhead plants, mounted on skids, with extension track for power-raised skip.

Even-texture mix is assured every batch by pug-mill mixing action and uniform bitumen distribution. For complete mechanical details and more cost-cutting ideas, contact your Kwik-Mix distributor, or write us for Bituminous Mixer catalog.

Also ask about Kwik-Mix 3½ to 16 cu. ft. Dandie Concrete Mixers, and low-cost Moto-Bug® — the 10 cu. ft. power wheelbarrow for low-cost material handling.

**KOEHRING**
**COMPANY • MILWAUKEE 16, WIS.**
*Subsidiaries:* KWIK-MIX • JOHNSON • PARSONS

**KWIK-MIX**
**COMPANY • PORT WASHINGTON, WIS.**
*(Koehring Subsidiary)*

# *Carlon** . . .

## the pipe dream that came true!

Now there's a pipe with all the features that have been only dreams for centuries . . . **CARLON** plastic pipe! It is extremely lightweight (only ⅛th as heavy as steel) . . . curves around obstructions and follows uneven ditches . . . is fast and economical to install . . . and is **guaranteed forever** against rot, rust and electrolytic corrosion.

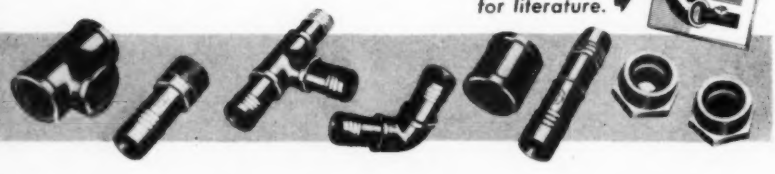
Flexible **CARLON** plastic pipe is furnished in lengths up to 400 feet and requires fewer fittings. Permanent installations can be made in only a fraction of the time required for metal pipe.

As a result of nonwetting property and smooth interior, **CARLON** plastic pipe has exceptional flow characteristics. Because there's no interior build-up, flow rate remains constant.

*** THE FIRST REAL PIPE THAT IS PLASTIC !**

*Buy the Pipe with the Stripe!*

*Write today for literature.*



**CARLON PRODUCTS CORPORATION**

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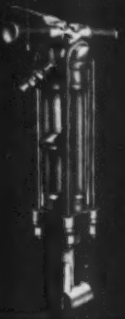
## . . . WHEN DEMOLITION IS YOUR AIM!

K-89 **SUPER HEAVYWEIGHT** This 90 lb. bruiser will knock the starch out of those tough, heavily reinforced concrete sections.

K-81 **HEAVYWEIGHT** Strikes faster, heavier blows than comparable breakers. Is easier to hold and operate. Raps right through the toughest jobs.



K-61 **MEDIUM WEIGHT** A hard-hitting but very easy-handling Breaker designed for thin-section concrete and other average demolition jobs.

THE THRIFTY JOY DUAL-VALVE

MAKES AIR DO MORE WORK!

Permits higher drilling speeds with lower air consumption. Effectively lowers drilling costs.

**Joy Paving Breakers are cadmium-plated *inside and out*—and you know what that means. The cadmium stops rust and corrosion, prevents scoring, and speeds up the running-in of the new tool. Lubrication is controlled by the throttle. Each movement actuates a mechanism which shoots the proper amount of oil to all working parts.**

**You've a dual-purpose tool with a Joy Breaker, too. Swap the chuck housing for a driving shoe and guide, and . . . PRESTO . . . you're holding the world's finest Sheeting Driver!**

**Joy Breakers offer less jarring and operator fatigue . . . less maintenance and replacement. Interchangeability of parts allows a smaller parts inventory. ● Descriptive bulletins tell all. Write *Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.* In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.***

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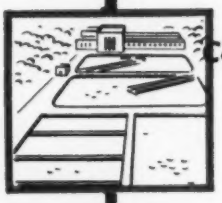
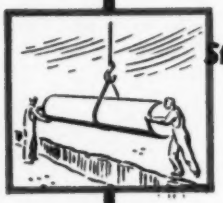


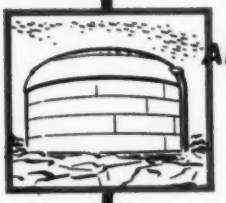
***Continuous Chlorination***

A safe, easy-to-use source of chlorine for regular water treatment.



***Sterilization of New Mains***

Makes an effective, economical solution for sterilizing new mains, pumps, standpipes and supply equipment.



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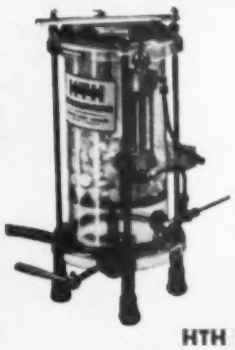
In reservoirs, basins, wells, tanks and flumes, HTH is a widely accepted agent for the control of algae.

***Emergency Chlorination***

In case of flood, drought, fire or power failure, HTH is a readily available source of chlorine.



HTH Tablets *and the* HTH TABLET HYPOCHLORINATOR

**For safe, dependable, metered chlorine solutions, investigate the many advantages of Hypochlorination with HTH Tablets. Write for full information.**

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**MATHIESON CHEMICAL CORPORATION**
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Police patrol has radio link with North Brunswick and Milltown to cover speed highways in area. Initial G-E 2-way radio equipment was purchased in 1944.

# "8 Years of Trouble-Free Performance"!

FIELD reports continually emphasize the value of G-E 2-way radio systems in co-ordinating municipal departments for efficient protection and service to citizens. The case of Highland Park, N. J., highlights two outstanding benefits of good communications.

1 **Radio cooperation with neighboring townships materially reduces the incidence of speeding.**

2 **Radio equipped ambulance service is a vital factor in saving the lives of accident victims.**

Captain Scheidig, in charge of communications, reports: "We're impressed with the extreme reliability of G-E equipment. It has given us trouble-free performance during eight years of rugged service!"

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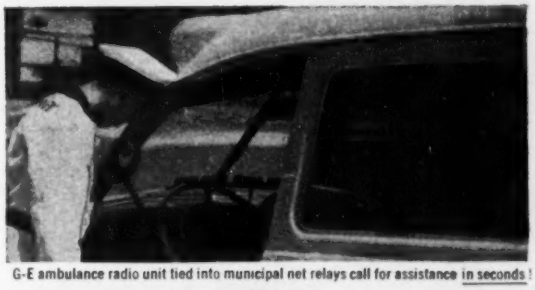
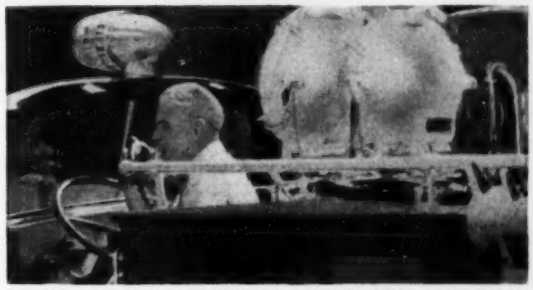
*Communications Advisory Service*



G-E ambulance radio unit tied into municipal net relays call for assistance in seconds!



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Please send me information on G-E municipal 2-way radio systems.

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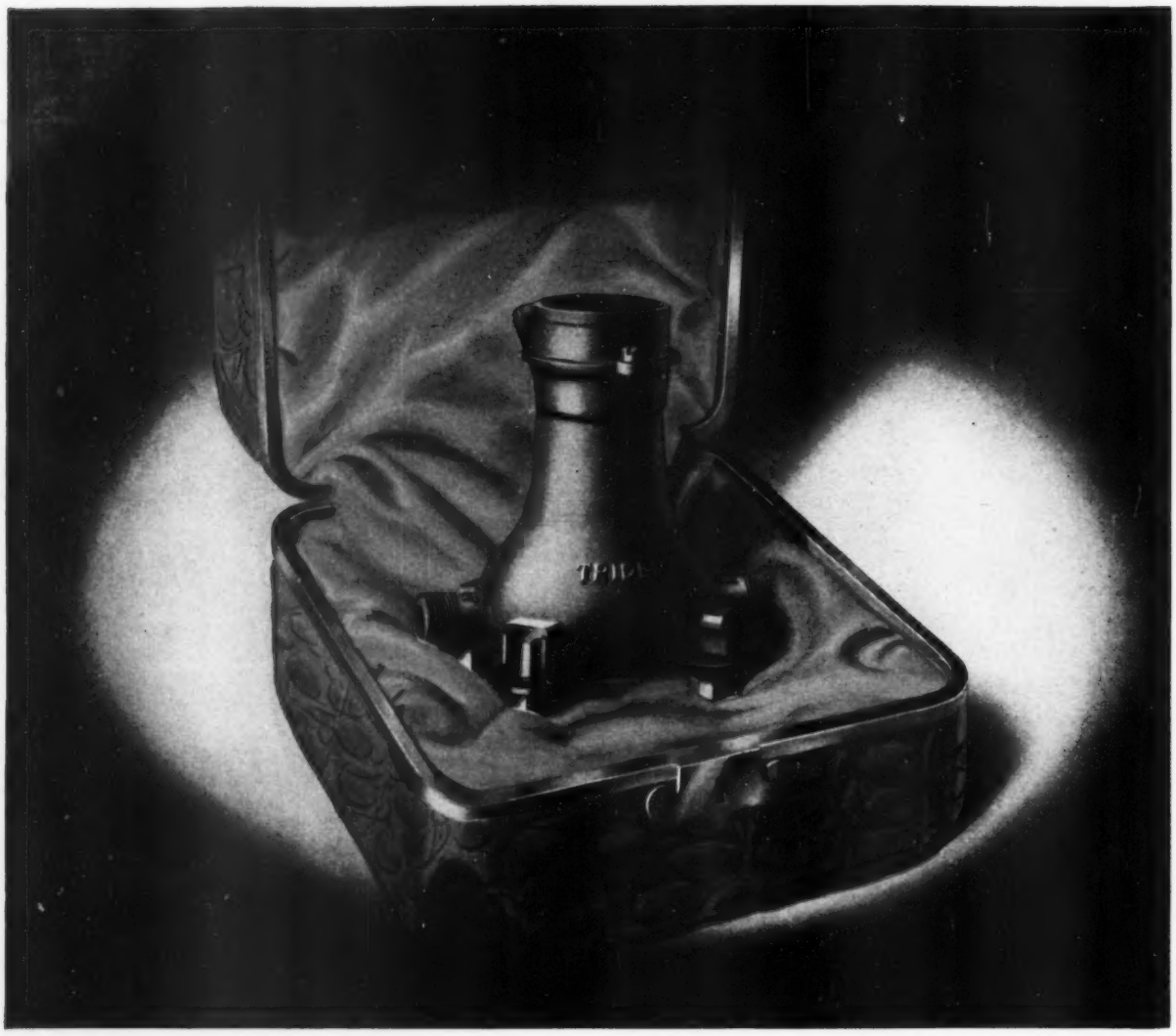

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Or Neptune's 50-year record of continuous interchangeability, proof for the future that your Tridents won't become obsolete, can always be made modern.

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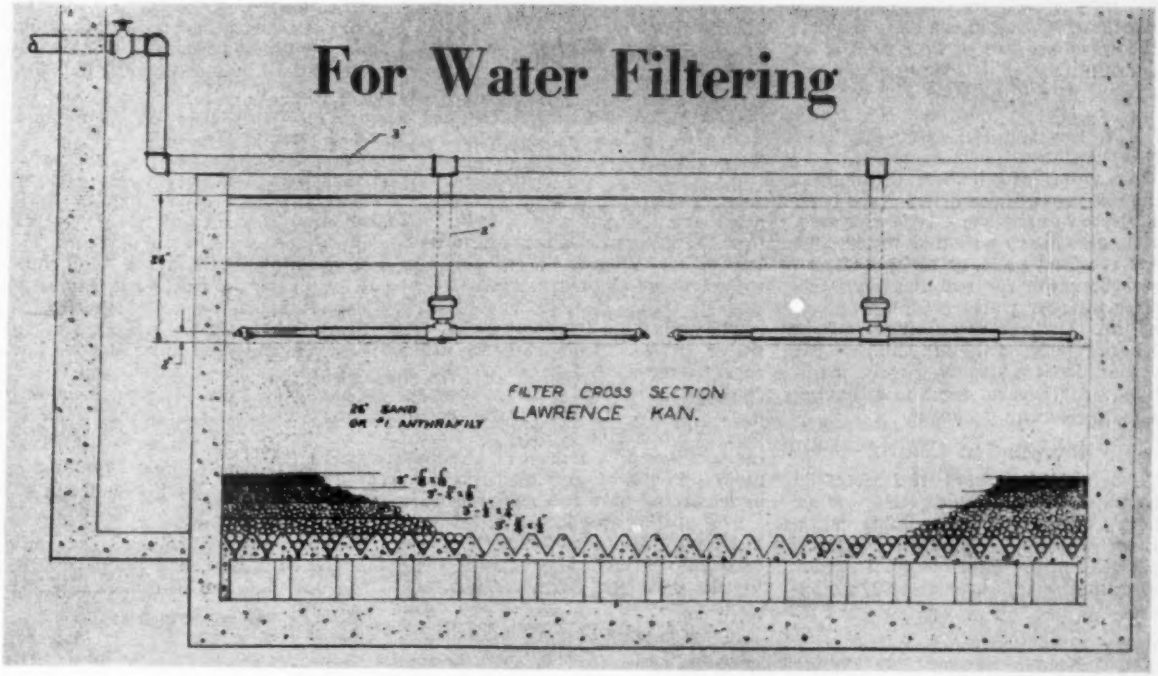
# Sand and Fine Coal Compared For Water Filtering




This cross-sectional diagram shows how the filters were rebuilt.

***Lawrence, Kans., makes a study of the comparative merits of sand and Anthrafilt, used side by side in filters in this city's water-softening and purification plant***

By **ROBERT MOUNSEY**
*Water Superintendent*
*Lawrence, Kans.*

FOR THE PAST six years, we in the Lawrence Water Department have been watching an interesting experiment on the comparative behavior of certain filter media as used in our water-softening-and-filtration plant. One material has been the conventional filter sand; the other has been ground anthracite coal, commonly known as Anthrafilt, a product of the Palmer Filter Company of Erie, Pa.

This experiment has been eminently fair. The filters were rebuilt completely in 1946 under the direction of Major C. Hagar, who was at that time water superintendent. Sand and Anthrafilt were placed in alternate filter units so that operating conditions were equal at all times. Washing procedure, except for lower velocity of backwash water in the Anthrafilt units, has been identical throughout this test period.

Each filter receives the same type of treated water. The source of the Lawrence city water is the Kansas River. This river water is moderately hard, usually turbid, flashy in character, and polluted enough to give us a problem of tastes and odors to overcome. Breakpoint chlorination, clarification, and lime–soda-ash softening provide a rather uniform settled water for filtration.

To test the relative merits of sand and the anthracite coal in this plant, Mr. Hagar rebuilt the four rapid sand filter units supplying two of them with Mississippi River sand,

and the other two with Anthrafilt as the filtering medium. All filters have identical gravel beds supporting these two media. The gravel consists of four layers supported by standard Wheeler filter bottoms. The gravel sizes and amounts are as follows:

| *Size* | *Thickness* |
|---|---|
| ¾" by ½" | 3" |
| ½" by ¼" | 3" |
| ¼" by ⅛" | 3" |
| ⅛" by 1/12" | 3" |

Into two of the filters labeled No. 1 and No. 3 went 26 inches of excellent washed sand, coming from a gravel deposit adjacent to the Mississippi River. This type of sand has been used widely in many filter plants and its performance record has been excellent. The sand used had a specified effective size of 0.35 to 0.45 of a millimeter and a uniformity coefficient of 1.40 or less. The remaining two filters, identified No. 2 and No. 4, received the same depth of No. 1 Anthrafilt.

As mentioned before, throughout the six years, these filters have been subjected to the same type of water, a lime-soda-ash softened water that has received primary and secondary recarbonation for stabilization. The filter influent water is somewhat alkaline. Its pH varies from 8.6 to 9.2 normally, although higher pH values, from 9.5 to 10.4, were maintained for several months following a main-cleaning program.

### Incrustation Control

During this period of higher pH treatment, we noted that rather heavy coatings of acid-soluble carbonates were being deposited on the particles of the filter media. In order to minimize this incrustation, we applied small dosages of Calgon, 0.25 to 0.50 ppm (parts per million) to the filter influent. We have continued this Calgon treatment to the present time.

**Robert Mounsey**

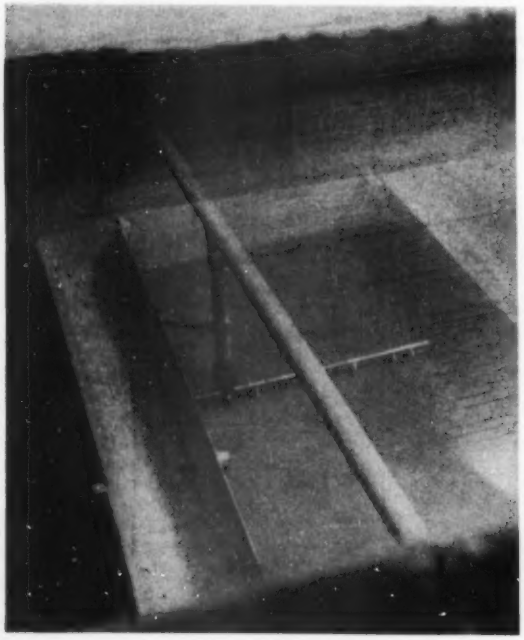
The reduction in alkalinity as the water passes through these filters rarely exceeds 5 ppm expressed as calcium carbonate, and averages about 2 ppm. Except for the period when we operated at high pH values, incrustation or a deposit on the filter media should be and has proved to be occurring only at a moderate rate.

The filters are all equipped with Palmer filter-sweep agitators. These went into service early in 1949. Prior to this date, the normal filter-washing procedure was that of draining the water 4 or 5 inches below the sand or Anthrafilt, and breaking up and thoroughly washing the surface area of the filter bed by using high-pressure water, discharging through a ¾-inch nozzle on a 1½-inch fire hose. Although this procedure kept the filter media in an apparently clean condition and free from mud balls, its low efficiency was demonstrated in the first few washes using the Palmer agitators. One sand filter was washed eight successive times before any noticeable lessening in the turbidity of the wash water was apparent. During these wash operations, the wash water would become clear immediately after the agitator was started. Obviously, backwashing without the surface agitator had not completely removed the dirt and deposited material on the filter particles.

The sand filters have been washed at a rate of 23 inches of water rise per minute to provide a 50% expansion of the filter bed. In contrast, the coal filters require a rise of only 16 inches of water per minute to get a similar expansion. This lowered velocity in the coal filters has given us the very important benefit of an improved gravel bed. Several blow holes are apparent already in the sand units, but we have detected none in the coal filters. These blow holes, or sand boils, have resulted in some inter-mixing of the fine gravel and sand in one of the filters.

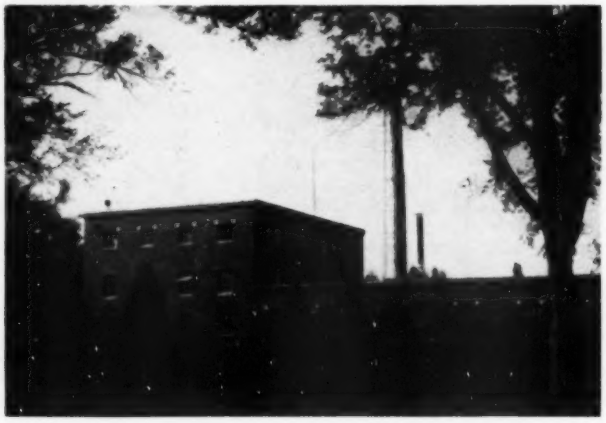
### Difference in Filter Runs

During the period of dry weather this past summer, when the demand exceeded our normal plant capacity, we operated the filters at a rate of



**This view, looking into one of the filters, shows the clarity of the finished water.**

**The Lawrence filter plant, where the experimental work took place.**



**1. Percentage Loss of Incrustants by Acid Treatment With and Without Surface Wash**

| | *By Volume* | | *By Weight* | |
|---|---|---|---|---|
| | *Without* | *With* | *Without* | *With* |
| No. 1 Filter—Sand | 15 | 13 | 13.26 | 10.06 |
| No. 2 Filter—Anthrafilt | 3 | 0.0 | 2.80 | 0.96 |
| No. 3 Filter—Sand | 14 | 13.5 | 12.60 | 11.90 |
| No. 4 Filter—Anthrafilt | No Sample | 1.5 | No Sample | 1.40 |

**2. Mechanical Analysis of Filter Sand Before and After Acid Treatment**

| | *10% Size* | | *60% Size* | | *Uniformity Coefficient* | |
|---|---|---|---|---|---|---|
| *Filter Number* | No. 1 | No. 3 | No. 1 | No. 3 | No. 1 | No.3 |
| Sand as purchased in 1946 | 0.45 | 0.45 | 0.63 | 0.63 | 1.40 | 1.40 |
| Sand as removed in 1952 | 0.57 | 0.57 | 0.80 | 0.80 | 1.40 | 1.40 |
| Sand after acid cleaning | 0.52 | 0.54 | 0.68 | 0.65 | 1.31 | 1.20 |

almost 3 gallons per square foot per minute. Poorly coagulated water was delivered to the filter units due to the high flow rates through the plant. The comparison in length of filter runs between the sand and coal units was quite noticeable and often an operating problem. The sand units developed a loss of head varying from 6 to 8 feet in 12 to 16 hours. In contrast, the coal units ran 24 to 32 hours before reaching an equivalent loss of head. Even with this longer run, we found that an equivalent amount of wash water cleaned the coal units more satisfactorily than the sand units. We were not able to detect any visible or bacterial differences in the quality of the effluent water from either type of filtering media during this critical period, although many tests were made to disclose any changes or differences while the water was poorly coagulated and unsatisfactory from a normal operating condition.

Later we took a composite sample from each of the filter units to compare physically the sand against the Anthrafilt. Six samples were taken from each filter, each 6 inches deep and 3 inches in diameter. These were then composited and separated into two equal portions for mechanical and chemical analyses. We first dried the two portions at 103° C., and made a mechanical analysis of the sand. A second portion of the filter sand, and also of the Anthrafilt, was treated with a mixture of hydrochloric and nitric acids at a ratio of 3:1. This removed organic and mineral deposits. The weight and volume of the filter media were taken before and after treating it with the acids. Unfortunately, we made no analysis of the acid solution following this treatment, although this should be done at a later date to establish the amount of calcium and magnesium deposit on the filter particles.

Table No. 1, above, indicates the percentage loss of weight and volume due to the incrustants being removed by acid treatment of the samples. The effect of the scouring action of the agitators on the filter media is also apparent from the percentage weight loss on the sand before and after the agitators were installed.

Most of the coating on the Anthrafilt is apparently due to noncarbonate and organic material since no carbon dioxide bubbles were apparent when the material was treated with acid. We hope to make a chemical analysis of the acid mixture following the treatment.

We also made a mechanical analysis of the filter sand before and after the acid treatment. Table No. 2, above, shows how the analysis looked on two of the filter sands.

The following observations on the relative merits of sand and Anthrafilt as filtering media can be made as a result of this interesting experiment:

1. No appreciable loss of Anthrafilt during backwash operations. The loss due to backwashing has been less than 0.6% per year.
2. Longer filter runs with the Anthrafilt, even with poorly coagulated water; less time out of service for washing filters.
3. No disturbance of gravel beds when Anthrafilt is used for the filtering media, because of lower wash-water velocity.
4. Although the same volume of wash water has been used for both types, cleaner filtering media result with Anthrafilt.
5. Anthrafilt does not coat as rapidly as sand with lime deposits and incrustations typical of a softening plant. Incrustations and deposits on filter media can be materially reduced by the use of surface agitators.
6. Anthrafilt expands to a greater per cent using the same velocity of backwash. This feature permits lower wash-water velocity and longer time for backwashing, resulting in a much cleaner filter bed.
7. The clean filter media as produced by the use of the agitators has no chlorine demand at the present time.
8. There is no apparent difference in quality of effluent water between the two types.

I wish to acknowledge the splendid help and encouragement given me by our former Water Superintendent, Major C. Hagar, whose original desire for this type of study and the thoughtful work he did made this article possible.

# Sidewalk Teller Helps Parking in Yakima

AT THE time the request came for a sidewalk teller the National Bank of Commerce, Yakima, Wash., branch, was in competition with two banks, both of which have ample parking areas adjacent to their banking institutions. Being in the heart of the business district, and with a building constructed many years ago, it was impossible for the Bank of Commerce to secure a parking area close to the bank. In casting around for relief from a competitive situation which could easily have affected their trade adversely, bank authorities decided to try out the sidewalk teller idea. Accordingly, they received permission from the City Commission to install such a device on the north-south arterial through the city, which is immediately adjacent to the bank. This was placed into operation approximately one year ago.

According to bank authorities it has enabled them to maintain a competitive position with other more favorably situated banks, as far as parking is concerned. It permits their customers to drive up, make their deposits, and drive away without getting out of their automobiles. Daily, 50 to 140 customers are served.

From the standpoint of traffic, these bank customers no longer have to drive around the block looking for a place to park. The City Commissioners allotted enough street space to accommodate five parked cars. Automobiles may park in the area at will before the bank opens and after it closes. During banking hours, from 9:30 until 3:00, the area is restricted to bank parking. Hence, during most of the day's business there are five parking spaces denied to persons who would like to park there. On the other hand, because of the rapid turnover in bank customers which the sidewalk teller has accomplished, there is a net gain of parking space on the part of the city because the cars that have stopped at the "Snorkel" are not parking somewhere else and taking more time in which to make a deposit. Therefore, both from a commercial and from a traffic standpoint, the street teller is a success in Yakima.

Special procedures adopted to avoid unbalanced front-foot assessments to irregularly shaped lots and to industrial areas

# How Stratford Made Sewer Assessments Fair

By ALLEN B. VERMILYA
*Director of Finance*
*Stratford, Conn.*

**Odd-shaped industrial property is assessed by superimposing a residential street and lot layout over it and making assessments in the manner shown.**

STRATFORD'S sewer-assessment problems are modern ones. We faced no such difficulties as these back in 1918 when the sewers were first constructed. In those days we built sewers relatively inexpensively, a street at a time, using town forces.

This system proved wholly inadequate in 1945. By that time our town had expanded more rapidly than the sewer system and we had a real disposal problem on our hands.

During all this period we financed the sewers on a front-foot basis. This was very fair because virtually everyone was satisfied with rectangular lots measuring 50 by 100 feet laid out on a grid-type street system.

Today, however, ideas have changed. People like larger lots, and often they are not the same size or even similar in size. At present, a lot measuring 60 by 125 feet is considered minimum, and 75 by 100 feet or more, preferable.

Our Sewer Committee, composed of three Council members, met weekly for three years with the Town Manager, Town Engineer, Superintendent of Public Works, Town Attorney, and Director of Finance. The plan we evolved no doubt can be improved. We feel that it is a greater step toward equity than has heretofore been taken, and we are in hopes that some other community will pick up where we left off.

Our plan is as follows: if a parcel of land will hold one home only, then it receives one unit of assessment, regardless of the frontage it may have. If its size permits building two or more homes, then it will be assessed for the number of homes it will accommodate.

Obviously, a person with a lot having a 75-foot frontage receives no more benefit from the sewer installation than the owner with only 50 feet. Furthermore, some people wanting a little more room had properties with 100-foot frontages, but with their houses so placed that our zoning laws would prevent the erection of any residence on the vacant area. Again, those "100-footers" receive the same benefit as those occupying a lot with 50-foot frontage, not twice as much.

### Faced With Problem

Moreover, we faced the problem of providing assessments for lots greater than 50 feet having accessory buildings on them. Our assessment ordinance specifically exempted any consideration of accessory buildings, and limited the depth of property to be assessed to 125 feet, or the rear of the residence itself.

If an owner held title to two adjoining 50-foot lots, and if he occupied one with his home, paying a single assessment, then he later might erect a second residence, thus having two sewer services with one paid assessment, presenting the claim that the property had already been assessed.

### Industrial Assessments

Our next problem was the assessment of industrial properties on an equitable basis with private owners. We have one small and four large industrial areas in the present sewer project.

Assessment on the basis of manpower was unfair because some factories worked three shifts; others, one shift. Assessment on the basis of water used was impractical, since our largest industry used its own wells for most of its water requirements. Assessment on the basis of

area of buildings was equally unfair, because two of the smaller industries had the greatest amount of room for expansion. Assessment on the basis of front footage would have created the greatest amount of inequity, since the two largest industries, with 2,500 or more employees, had 400- and 500-foot frontages. This would mean assessments equivalent to eight to ten houses.

### Uses Subdivision Layout

The plan developed was to lay out the industrial area as though it were a subdivision with 60 by 125-foot lots and 60-foot streets, according to our latest zoning laws, on the assumption that the property could be so divided if the factory were abandoned.

The first street, of course, borders on the sewer line, and, therefore, should have a 100% assessment. The second street would require an extension of the lateral to service it; therefore, it carries an 80% assessment. The assessments drop in the same manner by 20% increments until the full depth of the property, or 1,365 feet, whichever is the lesser, is reached.

The manufacturers were not entirely satisfied with our assessment method, but they did appreciate the effort that had been used to find an equitable solution. Being unable to suggest any alternative, they accepted our method.

### Assessment Payments

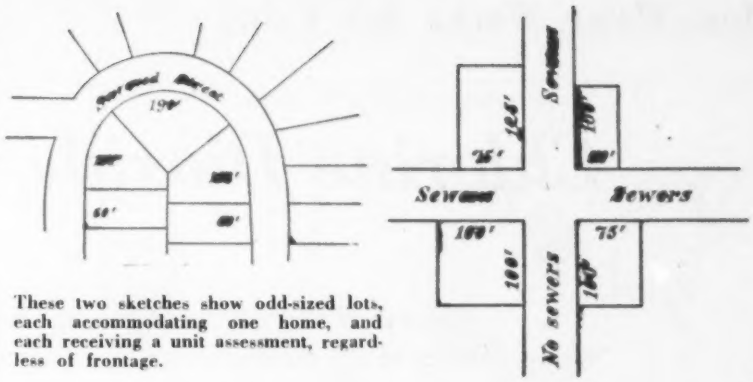
Another interesting development that took place involved the payments of the assessments. The prior Connecticut laws were so drawn that a property owner, either an individual or corporation, could not connect to any sewer system until the assessments had been levied. We know that our program would take at least the better part of two years, and we felt that we would be negligent if we did not provide for immediate connection to a finished section. It did not make sense to put a sewer in front of a house and then tell the owner that it might be a year or two before he could use it.

Therefore, we had legislation passed allowing immediate connection to completed sections of the sewer lines, providing the property owner involved signed an agreement to pay $125 at the time the agreement was made, and the balance of the assessment when levied. We went a step further and made the $125 payable in monthly installments of $12.50 until the $125 was paid, or the assessments levied, whichever came first.

When the assessments were finally levied and billed, the balance due was payable, if desired, in ten installments; the first in 60 days, and then yearly for nine years. The balance unpaid after 60 days carries an interest rate of 2%.

Many property owners who signed the original agreements kept up the monthly payments of $12.50 and had practically no balance to pay when the assessments bills were mailed. We also have found that many who signed for ten payments over nine years have paid up in less time.

We feel that our program was a success, as there were less than 1% of the assessments appealed in our first project, which encompassed 3,100 assessments.




**These two sketches show odd-sized lots, each accommodating one home, and each receiving a unit assessment, regardless of frontage.**

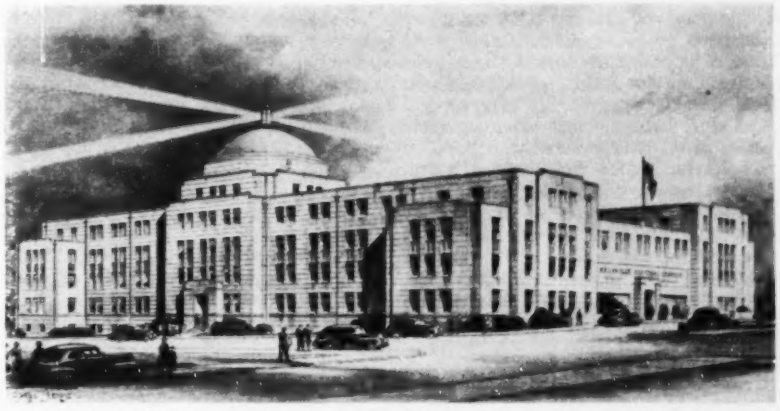
# Nashville's New Electric Center

NASHVILLE Electric Service recently moved out of a half-dozen locations into a handsome new building on a lot covering nearly three city blocks and about eight acres. Every NES activity now radiates from this one center where 700 employees work in a floor area of 174,000 feet. Ample space for parking for customers', employees', and company vehicles is provided in the basement and sub-basement as are pass-through aisles and unloading platforms for company trucks, and parking space for all company vehicles.

The entire building is air-conditioned with filtered air by Carrier equipment and the electrical apparatus by the Westinghouse Electric Corporation. While the building has a central-heating plant each office has a supplementary Electromode wall heater. The windows, from Pittsburgh Plate Glass Company, are double-paned. Plumbing equipment throughout is Crane. The Otis elevators have been strategically located for convenience, by A. W. Crouch, the designing engineer, in four parts of the building.

A modern cafeteria for 500 employees is on the third floor. The all-electric kitchen and dining-room equipment was supplied chiefly by Hobart and Hotpoint, Inc. Another feature of the building is the auditorium equipped wth 325 Lyon Aurorail folding chairs.

Since Nashville Electric Service took over power distribution in 1939, customers have increased from 52,384 to 100,000; average consumption per family from 1,669 kilowatt hours to 6,426 per year.



**Drawing of the new building in which Nashville Electric Service is housed.**

## How Water Works Are Using

# *Chlorine Dioxide Today*

**When taste and odor problems are tough, when the characteristics of the water change quickly and ordinary methods run into trouble, then a growing number of cities find oxidizing and purifying agents entering the water-treatment program**

WHEN a water-works man puts chlorine dioxide to work, he never gives it an easy job to do. He apparently turns to it as a sort of last defense against troublesome water problems on one side and indignant water users on the other.

Niagara Falls, N. Y., for example, found itself with a phenol problem on its hands a few years ago. As the water industry knows, if you combine chlorine with phenols, even in minute quantities, you have a chlorophenolic taste produced that can make a water foul and revolting, which will result in a boost in the bottled-water business. Chlorine dioxide had its first practical use in Niagara Falls, overcoming this troublesome nuisance.

Lockport, N. Y., located close by, also used water from the Niagara River. Taste and odor problems diminished when L. J. Hooker, Superintendent, added chlorine dioxide to his list of purification methods.

### Represents Purification Step

Chlorine dioxide, although not widely used, nevertheless represents a significant step in water purification. At one time, the public was satisfied to get a water that simply was free of disease-producing organisms. Chlorination, used with other appropriate treatment processes, provided this germ-killing assurance.

Later, water-works investigators discovered that chlorine, added to the water, reacted according to the laws that had long been laid down for it, by oxidizing the organic matter that might be present, as well as by killing the bacteria. If enough chlorine was present, it would oxidize all this matter, and in doing so, would destroy objectionable odors and tastes.

This produced the next step. If oxidation was fundamentally so important in the protective purification step, then a combination of chlorine and oxygen, in the form of chlorine dioxide, would be even better.

That is what was tried at Niagara Falls back in 1944-45. The tests showed that if the water contained phenols in no greater quantities than 0.08 ppm, and that if this water were prechlorinated to 3.0 ppm prior to sending it through the filters, then the plant would produce a water that had a very bad chlorphenol taste.

However, the operators could take this same water with its 0.08 ppm of phenols, reduce the prechloride dosage to 1.5 ppm, and then add only 0.5 ppm of chloride dioxide, expressed as available chlorine, and the chlorphenol taste would disappear.

### Made at Plant

One difficulty is that chlorine dioxide has to be made at the plant. It is a very reactive chemical, not stable enough to ship. However, it is not hard to make. One simply combines sodium chlorite solution with chlorine. A sodium chlorite solution containing 31 grams per liter of available chlorine, or 23 grams per liter of sodium chlorite, is fed by means of a common metering pump into the discharge line of a chlorinator. When it is fed at the rate of 1.65 gallons of solution per hour, it will deliver the equivalent of 2 pounds of chlorine dioxide, expressed in terms of available chlorine, per hour. Generally, the operators add an excess of chlorine to assure that the conversion of the sodium chlorine is complete.

### Stopped Manganese Trouble

This combination, prechlorination with 1.5 ppm of chlorine, and post treatment with 0.5 ppm chlorine dioxide, also spelled the end of taste and odor troubles at Greenwood, S. C. At that time, the city drew water from a shallow pond on a small creek. Organic matter had produced troublesome taste and odor problems that conventional treatment methods had never been able to correct. The problem was aggravated some few years ago when the Army built a flying field on the watershed and evidently cut into a vein of manganese ore. Surface drainage from this field brought the manganese into the Greenwood water supply, producing the characteristic brown stains in the laundry of the Greenwood housewives.

At first the water department tried to oxidize the manganese by aeration. When this failed, they tried prechlorination and post-chlorination. Only when they substituted chlorine dioxide for the post-chlorination did the manganese troubles disappear. Furthermore, they had an extra dividend in the form of freedom from tastes caused by the organic matter also. All organic deposits in the mains also were oxidized slowly as indicated by a drop in the residual throughout the distribution system.

In recent years Greenwood has switched to a larger impounded supply and no longer has the manganese problem to overcome. Mr. William R. Wise, manager of the Greenwood municipal utilities, now uses the shallow supply only in an emergency.

### Water With a Musty Taste

At Chicopee, Mass., hydrocarbons and decomposed organic matter were the taste-producing factors. The basic taste and odor is of a musty or mouldy nature and often is aggravated by hydrocarbons, producing a kerosene-like taste.

To overcome this difficulty, Chicopee prechlorinated the water sufficiently to maintain a residual of 0.1 to 0.2 ppm through the filters. The prechlorinated water received alum and activated carbon before going to the filters, and a little lime after leaving the filters for the clear well.

At this point, also, the water received chlorine dioxide consisting of a dosage of from 0.5 to 1.0 ppm measured as available chlorine. This treatment so improved the final efflu-

ent that complaints about the tastes disappeared.

Morrisville, Pa., also had a troublesome taste problem, caused initially by algae in the water and aggravated by industrial wastes from a steel mill and a rubber plant. But these were of small consequence when matched against the difficulties that arose a few years ago when a flash flood brought mud and sewage to the water intakes. The raw water had a turbidity of 4,000 ppm and the smell of sewage. Yet throughout all this ordeal, the plant succeeded in producing a water of high quality, free of tastes and odors.

### Prechlorinates to Break Point

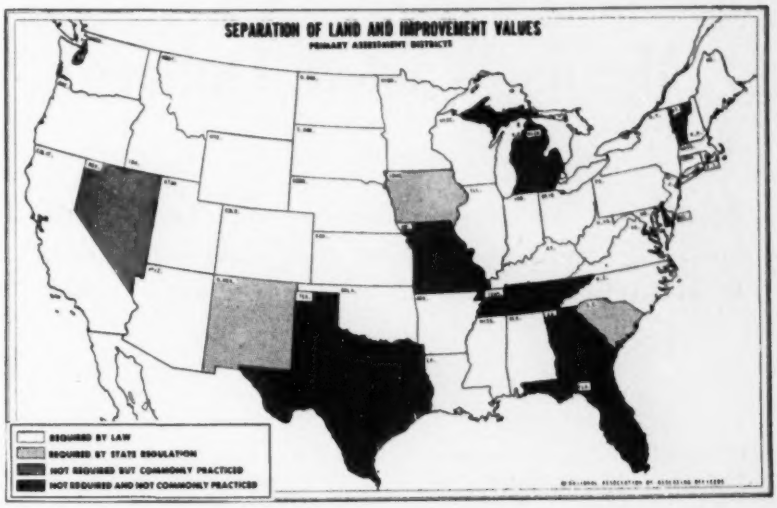
The practice here is to prechlorinate to the break point, and this requires about 3 ppm of chlorine, all added at the same time that the alum and soda ash are applied; the residual customarily drops to 0.5 ppm five hours later when the water appears on top of the filters, and may be only 0.2 ppm as it leaves the filters. At this point it receives its booster shot of chlorine dioxide, amounting to 0.5 ppm, and the water leaves the plant without troublesome tastes or odors. Tests at the far end of the distribution system show a residual of 0.1 to 0.2 ppm as chlorine.

### Finds Application Ahead of Filters More Effective

Lawrence, Kans., also draws water from the badly polluted Kaw River, with flashy and unpredictable characteristics. At times the silt content alone can rise as high as 30,000 ppm. Water Superintendent Robert Mounsey alters the treatment somewhat from the procedure previously described. He uses prechlorination, applying as much as 25 ppm at times, to produce a free chlorine residual of 1.5 to 2.0 ppm following primary sedimentation. Prior to the addition of softening chemicals, the prechlorinated water is treated with a coagulant made by blending in a hammermill equal proportions of alum and ferrous sulfate; if the silt content is high, a higher proportion of ferrous sulfate is used. Chlorine dioxide is applied in the filter influent line following further settling and recarbonation. His experience has been that the chlorine dioxide applied ahead of the filters does a better job of burning out the residual organic material and chlorine-combination compounds than it will if applied after filtration—the common practice of other users.

This all indicates that chlorine dioxide, properly used, presents itself as a tool that will enable a city to overcome persistent taste and odor problems caused by phenols in small quantities, algae, organic matter, hydrocarbons, and other troublesome sources that resist other forms of treatment. As one water-works man said, when the problem is tough, give chlorine dioxide a try.

## Separate Assessment of Land and Improvements


SEPARATION OF LAND AND IMPROVEMENT VALUES
PRIMARY ASSESSMENT DISTRICTS
REQUIRED BY LAW
REQUIRED BY STATE REGULATION
NOT REQUIRED BUT COMMONLY PRACTICED
NOT REQUIRED AND NOT COMMONLY PRACTICED

IN THE February 1953 *Assessors' News Letter*, the National Association of Assessing Officers reports that 39 states now require separate assessment of land and improvements. In 36 of the states, separation is required by statute. In three others, it is required by administrative regulation. In still another state, Nevada, it is the general practice of local assessors although not specifically required by statute or administrative regulation. On the other hand, apparently, there are eight states which still appraise land and buildings as one unit. The practice on each state is shown on the map.

The data in this survey relate only to primary assessing districts. Usually overlapping and primary assessing districts are subject to the same law or follow the same practice. Texas, however, is an example where this is not true. Many Texas cities (overlapping districts) assess buildings and improvements separately. Most of the county assessors (primary districts) do not.

### Practice Uniform Within State

It should be noted that where there is no specific law, the practice is now always uniform for all primary districts within a state. In such instances, the state has been put into the category which includes the majority of primary districts. An example of this would be Michigan. Many cities in Michigan separately appraise land and buildings. Most of the townships include land and buildings in one value. Since there are more townships than cities, for purposes of illustration, the map shows Michigan assessors as not commonly practicing separation of values.

It appears that more states are recognizing the importance of separate assessment of land and improvements. In recent years New Hampshire, Pennsylvania, and Oregon have enacted laws requiring separate valuation.

The law of Missouri is different from that of all other states. It clearly states that the assessor shall not be required to make separate assessment of land and buildings. Separate assessment is not commonly practiced in Missouri.

## *Master's Degree in Planning Is Being Offered in Canada*

A PROFESSIONAL degree in planning is being offered for the first time by a Canadian university. The University of British Columbia announces that it is offering a course in Community and Regional Planning within the Faculty of Graduate Studies leading to a Master's Degree. This degree will be either a Master of Arts or Master of Science, depending on the prerequisites offered by the candidate and the courses chosen.

The curriculum and instruction methods combine to train students with special qualifications in the general social, economic, and physical relationships in land use in its urban and regional application.

A number of fellowships, scholarships, and bursaries are available for qualified students through the support of the Canadian Government and by the community of Vancouver for graduate study and research in community planning.

For further information, write the Secretary, University Committee on Community and Regional Planning, University of British Columbia, Vancouver 8, B. C.

# Wasted Water

# Means Wasted Dollars

**Restrict the use of your fire hydrants, keep meters operating accurately, and hunt down leaks in the mains to avoid financial loss in your city's water system**

**Meter readers use units like this one to test for leakage at meters, valves, and fire hydrants.**

WASTEFUL USE of the taxpayers' money by a careless administration generally calls for strong action by the mayor and other public officials if they expect to stay in office. Water-works officials have every reason to be equally concerned about water pumped to the distribution system and not accounted for. This means that it generally is wasted, and water that is wasted is wasted money.

If you can't account for 85% of the water pumped in older systems and somewhat more in new, then start looking for leaks in the water-distribution system. This is the advice of John Briggs, Assistant Superintendent of the Freeport (Ill.) Water Department, and coincides with the counseling of many others who are alert to this sort of waste. Some have even more exacting standards. James Myers, when he was water superintendent of Kenosha, Wis., asserted that you should be able to account for 92% of all the water pumped in a distribution system operating at pressures up to 80 pounds per square inch; he was able to account for 94% in the Kenosha system.

### Unauthorized Hydrant Use

The unmetered or unauthorized use of water from fire hydrants is one way that a city can lose track of the water delivered to the distribution system. Most cities find that the best policy is to allow no one but the fire department or the water, street, and sewer departments to use these hydrants. The fire department can either meter or estimate the amount of water that it uses. According to D. D. Gross, of the Denver (Colo.) Board of Water Commissioners, fire-fighting use is estimated at less than 0.2% of the total water use on a long-term basis. The street department should meter the water used by street sweepers, and sewer-flushing operations also can be metered to give a tally of this type of water use.

Under-registration of water meters is another costly way to lose water. In the Kenosha system, all meters are tested on a 10-year cycle, and large meters are tested annually. All meters must show a 97% accuracy at ¼ gpm, and a 90% accuracy at ⅛ gpm.

### Leakage Checks

Leakage is the remaining way that water pumped can be lost. In Denver, Mr. Gross recommends leakage tolerance of 75 to 150 gallons per inch of diameter per mile of mains per 24 hours. If leakage is more than this, the time has come to start looking for those leaks and repairing

**Unusual flows in sewers often mean trouble in the water mains.**

**Unusually fast-melting snow in late fall and early winter can be a danger signal.**

them. The Kenosha system gives somewhat broader figures of 60 to 250 gallons.

Dewey Johnson, of the Cast Iron Pipe Research Association, recommends that meter readers make a routine check of leaks each time they read a meter. Kenneth W. Robie, Superintendent of Water, at Brookline, Mass., follows such a policy. All meter readers use an Aquaphone to detect leaks in meters, valves, and hydrants. Special crews follow up these findings to isolate the break or leaking joint. This has enabled him to account for all but 85% of the water pumped.

### Electronic Leak Detectors

Rather than use the Aquaphone for this work, many water-maintenance crews use the more sensitive electronic devices. Fisher Research Laboratory, of Palo Alto, Calif., makes a combination pipe locator and leak detector, Type 49 BL, that locates leaks and traces and measures the depth of buried pipes and cables. The same company makes a Midget Leak Detector that can be carried conveniently by one man.

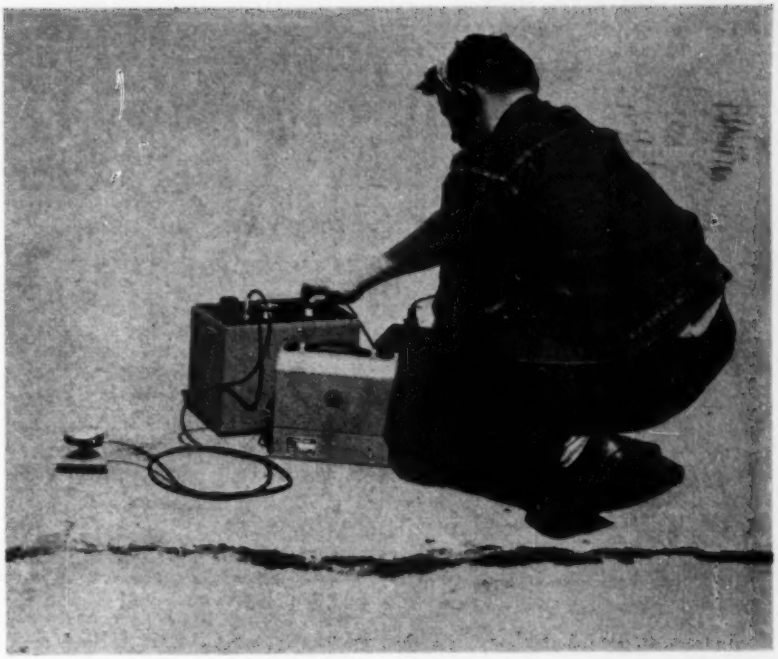
The Detectron Company, of North Hollywood, Calif., also makes a combination leak detector and pipe finder, and a small detector, weighing less than 2 pounds. The Goldak Company of Glendale, Calif., also makes a combination leak detector and pipe finder. Its Model 46 "Senior" and its Dualtronic combination pipe locator and leak detector will perform these tasks. Other similar equipment is available that will perform these detecting tasks.

### Other Evidence of Leaks

An alert water-works man often can detect leaks in the system by other evidence that requires no special equipment. Unusual flows in the sewers mean that water is not getting to the customer. In undeveloped areas, leaks in water mains make themselves known by the appearance of excessive weed growths. In northern cities, leaks disclose themselves during the winter by melting the snow or frost, especially during late fall or early winter.

These evidences of water leaking from a main do not always mean that a repair crew can dig at such a spot and uncover the trouble. Often water will travel relatively long distances along the mains before reaching the surface of the ground. The best policy is to find the leak by using one of the electronic devices and save costly digging.

Thus, if you keep the meters accurate and in good shape, if you restrict the use of hydrants only to those who have a good reason to use them, and if you aggressively hunt down those leaks in the water-distribution system, you will keep the "unaccounted-for" water item low in your water-works accounting books.



**Electronic leak-detecting apparatus like this finds trouble in water mains, even through pavement. This one is a product of the Fisher Research Laboratory.**

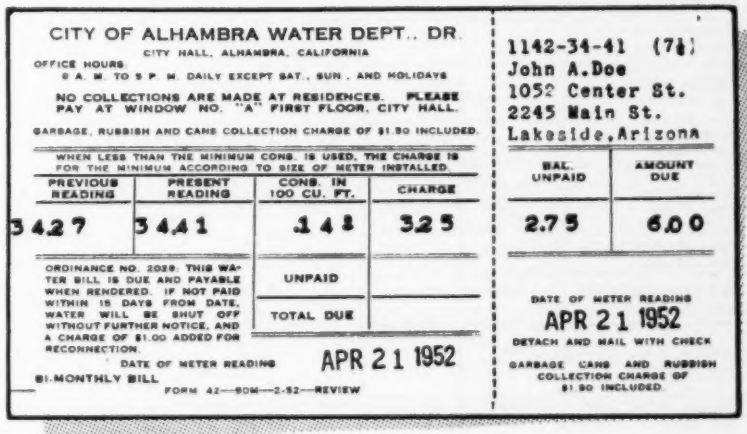
## Bi-Monthly Water Billing Is Recommended by Alhambra, Calif.

WHEN the City of Alhambra, Calif., instituted bi-monthly water billing nine years ago, personnel was reduced by two, and postal charges were cut in half by a penny postcard bill. Since then Alhambra's population has increased from 39,000 to 51,000, one employee has been added, and postal rates have risen.

Soon after the bi-monthly billing started, delinquent accounts began decreasing in number. My explanation is that the less frequent and, therefore larger, bills encouraged prompter payment. The way delinquency dried up is shown in figures. With total billings amounting to $1,449,683 in the five years, 1943-48, uncollectable bills amounted to $81.27. With billings of $1,065,259 in the three years, 1948-51, the uncollectable figure is practically nil, and with practically no arrears, our public relations are better.

Burroughs Company billing machines are used to do the work.

JOHN W. CLAY
*Superintendent and Chief Engineer*
*Water Department*
*Alhambra, Calif.*


CITY OF ALHAMBRA WATER DEPT., DR.
CITY HALL, ALHAMBRA, CALIFORNIA
OFFICE HOURS 8 A. M. TO 5 P. M. DAILY EXCEPT SAT., SUN., AND HOLIDAYS
NO COLLECTIONS ARE MADE AT RESIDENCES. PLEASE PAY AT WINDOW NO. "A" FIRST FLOOR, CITY HALL.
GARBAGE, RUBBISH AND CANS COLLECTION CHARGE OF $1.50 INCLUDED.
WHEN LESS THAN THE MINIMUM CONS. IS USED, THE CHARGE IS FOR THE MINIMUM ACCORDING TO SIZE OF METER INSTALLED.

| PREVIOUS READING | PRESENT READING | CONS. IN 100 CU. FT. | CHARGE |
|---|---|---|---|
| 3427 | 3441 | 14 | 3.25 |
| | | UNPAID | |
| | | TOTAL DUE | |

ORDINANCE NO. 2039: THIS WATER BILL IS DUE AND PAYABLE WHEN RENDERED. IF NOT PAID WITHIN 15 DAYS FROM DATE, WATER WILL BE SHUT OFF WITHOUT FURTHER NOTICE, AND A CHARGE OF $1.00 ADDED FOR RECONNECTION.
DATE OF METER READING APR 21 1952
BI-MONTHLY BILL
FORM 42—80M—2-52—REVIEW

1142-34-41 (7)
John A. Doe
1052 Center St.
2245 Main St.
Lakeside, Arizona

| BAL. UNPAID | AMOUNT DUE |
|---|---|
| 2.75 | 6.00 |

DATE OF METER READING
APR 21 1952
DETACH AND MAIL WITH CHECK
GARBAGE CANS AND RUBBISH COLLECTION CHARGE OF $1.50 INCLUDED.

# Refuse Service Charges

***What they are, how much they raise, and what type of service they support in the larger cities***

By CARL SCHNEIDER
*Consulting Engineer*
*New Orleans, La.*

RECENTLY, the subject of refuse-service charges has been studied in this office for possible use by the New Orleans Department of Sanitation. This has resulted in our collecting and assembling data on service charges or fees currently used by the larger cities.

These rates vary so greatly that no common denominator could be established. Nevertheless, the importance of the subject requires a close examination of these fees, especially during this period, when cities have to learn how to finance more of the municipal services by other means than the general property tax.

In summary, the rates set up by these cities are as follows:

### Berkeley, Calif.

The city is divided into three districts for which the rates differ slightly. Rates for District No. 2 are as follows, monthly:

| | Collections per week | | | |
|---|---|---|---|---|
| *Amount Collected* | *One* | *Two* | *Three* | *Four* |
| 30 gal. or less | $ .85 | $1.70 | $2.55 | $3.10 |
| 31 to 40 gal. | .95 | 1.90 | 2.85 | 3.70 |
| 41 to 50 gal. | 1.25 | 2.50 | 3.75 | 7.50 |
| 51 to 60 gal. | 1.50 | 3.00 | 4.50 | 9.00 |
| **For waste paper in burlaps, placed* | | | | |
| Up 1 flight stairs | 2.00 | 4.00 | 6.00 | 12.00 |
| Ground floor | 1.50 | 3.00 | 4.50 | 9.00 |
| Curb | 1.00 | 2.00 | 3.00 | 6.00 |

*Rates are per burlap, all of which are furnished by city

### Boston, Mass.

All collections by contract, financed by city, contractor permitted to charge 20 cents per barrel for collecting commercial refuse.

### Detroit, Mich.

All collections from residences are free. For commercial refuse, no charge is made for quantities up to 20 bushels of rubbish monthly, or 200 gallons garbage monthly, from any one point of origin. These amounts are exemptions.

Rate for quantities in excess of exemptions are:

Rubbish.....10 cents per bushel
Garbage ....1.5 cents per gallon

Billings are made in two ways:

1. On basis of quantities collected
2. At a flat rate, shown by experience to be in accord with quantities.

The latter method is preferable because of reduction in clerical work, records, etc., and merchants are willing to pay in advance, several months, etc.

### Fort Worth, Texas

Monthly rate as follows:

| | |
|---|---|
| Single family residence | $1.00 |
| Duplex apartment | 1.60 |
| Multiple apartments, each | .75 |
| Business and Commercial, Classified | 2.00 |

I to VIII minimum
Plus 65 cents per cu. yd. for each cu. yd. in excess of amount hauled under each class.
These rates are based on 1 trash, 2 garbage collections per week.

| Name of City and 1950 Population | Fees Levied for Residence-R Commercial-C | Revenues as % of Cost of Service | Point of Collection Curb-C Alley-A Yard-I | Method of Billing and Collection | Cost of Billing and Collecting as % of Revenue | Charges for Disposal | Administrative Methods |
|---|---|---|---|---|---|---|---|
| Berkeley, Calif. Pop. 113,217 | R-C | 100 | Y | - | 9 | 50¢ to $3.00 per load | City operation |
| Detroit, Mich. Pop. 1,838,517 | C | 66-2/3 | C-A | Central Office semi monthly bills | 10 | Land Fills-20¢ per cu.yd. Incinerator-10¢-30¢ cwt. | " " |
| Fort Worth, Texas Pop. 277,047 | R-C | 90 | A-I | By Water Department monthly bills | 1.2 | Private haulers $25.00 per yr. Business self haul $5.00 per yr. | " " |
| Fresno, Calif. Pop. 90,618 | R-C | 100 | A-Y | Post Card Monthly Bill | 5 | Charge by load | City operation Some Rubbish free |
| Milwaukee, Wis. Pop. 632,651 | C | 100 | Y | Tickets, $1.00 each | - | $1.00 per load, any size | City operation |
| Oakland, Calif. Pop. 380,576 | R-C | 100 | Y | Quarterly | - | $1.00 per cu. yd. or $1.00 per ton | Private scavenger operation pays City supervision |
| Oklahoma City, Okla. Pop. 242,450 | R-C | 100 | C-A | Res. Bills Quarterly Com. Bills Monthly | 3.5 | No private hauling permitted | City operation |
| Portland, Ore. Pop. 371,011 | R-C | 91 | Y | Collectors collect on first pick-up of month for previous month | - | Scavenger licenses $350 per yr. city, and $600 from outside city | Operation by private scavenger regulated by city. Revenue applied to disposal cost |
| Sacramento, Calif. Pop. 135,761 | R-C | 100 | C-A-Y | Post Card Bill | 3.0 | None | City operation |
| San Francisco, Calif. Pop. 760,783 | R-C | | Y | - | - | 90¢ per ton | Two private companies with exclusive franchises |
| Spokane, Wash. Pop. 160,464 | R-C | 100 | C-A | City in 4 Dists., 1 billed each month for quarter | 3.5 | 50¢ per load, burnables 50¢ per 3 cu. yd., non-burnables 20¢ per cwt. light waste | City operation |
| Wichita Falls, Texas Pop. 67,709 | R-C | 100 | A-I | On Water Bills | 2.2 | 25¢ per load | City operation |

### Fresno, Calif.

Monthly rates as follows:

| Amount Collected | Collections per Week: One | Two | Three | Four |
|---|---|---|---|---|
| 30 gals. | $ .80 | $1.25 | $1.70 | $3.05 |
| 60 gals. | 1.25 | 2.10 | 2.90 | 5.40 |

### Milwaukee, Wis.

All collections from residences are made free. Some collections are made from basements.

All commercial refuse is collected at $3.50 per cubic yard.

### Oakland, Calif.

Private company, under contract with city, sets monthly rates for homes and businesses.

30 gal. can—1 per week ..... $ .75
30 gal. can—2 per week ..... 1.50
Business houses $1.00 per cu. yd. per collection.

### Oklahoma City, Okla.

Monthly rates as follows:

Residential—20-gal. can, 2 collections per week $1.00
Single residences .65
Units in multiple family dwellings
Commercial—according to volume to be collected and frequency
Range— $2.00 to $75.00 per month

### Portland, Ore.

Straight handling charge of garbage, ashes, or rubbish, per can of 20-gallon capacity, 20 cents per can.

*Residential—Monthly Rates*

| Collections | 1 Can | 2 Cans | Each Ad. Can |
|---|---|---|---|
| Once per week | $1.00 | $1.50 | $ .75 |
| Twice per week | 2.00 | 3.00 | 1.50 |

*Commercial—Monthly Rates*

| | 1 Can | 2 Cans | 3 Cans | Each Ad. Can |
|---|---|---|---|---|
| Once per week | $1.00 | $1.50 | $2.10 | $ .70 |
| Two per week | 2.00 | 3.00 | 4.20 | 1.40 |
| Three per week | 3.00 | 4.50 | 6.30 | 2.10 |
| Four per week | 4.00 | 6.00 | 8.40 | 2.80 |
| Five per week | 5.00 | 7.50 | 10.50 | 3.50 |
| Six per week | 6.00 | 9.00 | 12.60 | 4.20 |

Two flights of stairs, up or down, 50c additional
Suburban areas .25 to .50 additional
Extra hauling, per load at curb, $8.00

### Sacramento, Calif.

Monthly rates as follows:

| Amount Collected | Collections per week: One | Two | Three | Four |
|---|---|---|---|---|
| 31 gals. or less | $ .60 | $1.00 | $1.50 | $3.00 |
| 31 to 40 gals. | .90 | 1.25 | 2.00 | 4.00 |
| 41 to 50 gals. | 1.05 | 1.50 | 2.50 | 5.00 |
| 51 to 60 gals. | 1.20 | 1.75 | 3.00 | 6.00 |
| 61 to 70 gals. | 1.35 | 2.00 | 3.50 | 7.00 |
| 81 to 90 gals. | 1.65 | 2.50 | 4.00 | 8.00 |
| 91 to 100 gals. | 1.80 | 2.75 | 4.50 | 9.00 |

Irregular rubbish collection only, at $3.00 per truck hour.

### San Francisco, Calif.

Rates are based on number of rooms in dwelling unit, frequency of collection, (1 to 4 times) and location of containers, ground floor, or up or down one or two stairways. Typical rates for one 30-gallon container per month are as follows:

| | *For 1 to 4 Rooms* Collections per Week: One | Two | Three | Four |
|---|---|---|---|---|
| Ground Floor | $ .60 | $ .75 | $1.00 | $1.30 |
| 1 Stairway | .65 | .85 | 1.05 | 1.35 |
| 2 Stairways | .70 | .85 | 1.10 | 1.40 |
| *For 10 Rooms* | | | | |
| Ground Floor | .90 | 1.25 | 1.45 | 1.75 |
| 1 Stairway | 1.00 | 1.35 | 1.50 | 1.85 |
| 2 Stairways | 1.00 | 1.50 | 2.05 | 2.10 |

### Seattle, Wash.

Pays City Sanitary Service Company $1.85 per capita per year.

### Spokane, Wash.

Base rate varies with distance of carryout. For 30 gallons, one-per-week collection, rates are as follows:

| *Carryout not over* | *25 ft.* | *50 ft.* | *100 ft.* | *125 ft.* |
|---|---|---|---|---|
| 30-gal. rate per month | $ .90 | $1.15 | $1.40 | $1.50 |
| Each additional 30 gal. | .60 | .90 | 1.00 | 1.25 |

Special service at actual truck time:—
$4.50 per hour for 3½ cu. yd. truck
$5.00 per hour for 5 cu. yd. truck

### Wichita Falls, Tex.

Monthly rates as follows:

| | |
|---|---|
| *Residences* | |
| Single Units | $1.35 |
| 2 to 4 Units | 1.25 per Unit |
| 5 to 12 Units | 1.10 per Unit |
| All over 12 Units | 1.00 per Unit |
| Carryouts | 2.00 per Unit |
| Businesses | 2.50 Minimum |

All charges above minimum are set on basis of time consumed at $6.00 per hour. Frequency 2 per week, summer; 1 per week, winter.

# What's Wrong With Feeding Raw Garbage to Hogs

*[Excerpts from the National Conference on Thichinosis held recently in Chicago]*

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TRICHINOSIS is a disease of animals, particularly of swine, which affects man when raw or improperly cooked pork containing viable trichinae is eaten. It is estimated that of the 60,000,000 hogs slaughtered each year, 1½%, or 950,000, are infested with trichinae. While only 40% of the trichinosis in hogs can be blamed on those fed entirely on raw garbage, a majority of the remaining 60% must be due to partial feeding of raw garbage.

VERNON B. LINK, M.D.
*Medical Director*
*Communicable Disease Center*
*U. S. Public Health Service*
*Atlanta, Ga.*

●

The states that raise a minimum of the total hogs marketed in the United States are creating many problems and jeopardizing the entire livestock industry by the continued practice of feeding raw garbage to swine. Present interstate regulations are ineffectual. Controls must consider garbage, hogs, and pork. The following are recommended:

1. Prevent the interstate movement of raw garbage except under certain specified conditions
2. Prohibit movement of live hogs and pork out of any state which shall fail to have and enforce regulations requiring the cooking of garbage that is fed to hogs.

OSCAR SUSSMAN, D.V.M.
*Chief, Bureau of Veterinary Public Health*
*New Jersey State Department of Health*

●

The Public Health Service is undertaking to control the disinfection of garbage shipped interstate by instituting enforcement action under the section of the Interstate Quarantine Regulations which prohibits garbage to be shipped across state lines and fed to swine unless minimum heat-treatment of garbage (212° F. for 30 minutes) is obtained. The U. S. Department of Agriculture and the Public Health Service have prepared a joint publication on the various methods now in use to disinfect garbage. A suggested guide for state legislation, which was developed and distributed to state authorities by the Department of Agriculture and the Public Health Service, will require all swine raisers feeding commercial garbage to adopt disinfecting procedures and to obtain licenses or permits. In the past few months, nine states and the Territory of Alaska have adopted such legislation and 28 additional states are reported preparing legislation for consideration in the coming sessions of their legislatures.

RALPH VAN DERWERKER, *Chief*
*Municipal and Rural Sanitation*
*U. S. Public Health Service*
*Washington, D. C.*

●

In a study recently completed, the incidence of trichinae in over 3,000 hogs originating in several Corn-Belt states was only 0.6%, and these were very lightly infected. In parallel studies, a series of about 1,500 samples from garbage-fed hogs on the Eastern Seaboard showed an incidence of 11½% with nearly 5% strongly infected.

BENJAMIN SCHWARTZ, M. D.
*Chief, Zoology Division*
*Department of Agriculture*
*Washington, D. C.*

●

Garbage serves as an excellent vehicle for transmission of viral, bacterial, and parasitic diseases in swine. Hog cholera, vesicular exanthema, foot-and-mouth disease, salmonellosis, tuberculosis, brucellosis, and trichinosis are all transmitted in garbage or by feeding of infected meat.

JAMES H. STEELE, D.V.M.
*Veterinary Director*
*Communicable Disease Center*
*U. S. Public Health Service*
*Atlanta, Ga.*

# MORNINGSIDE-MANHATTANVILLE

## *a pioneer urban redevelopment program*

**A cooperative project in a cooperative community will make this world-famous New York neighborhood an example for other cities of good racial and cultural relations through urban redevelopment**

IN URGING the New York City Planning Commission to approve the proposed 984-family Morningside Heights-Manhattanville cooperative on December 10, 1952, Dr. Harry Emerson Fosdick, famed educator and cleric, highlighted the importance of this project, planned for the Columbia University area:

> I am convinced that what you are considering today is not just the fate of one housing project, but the possible future of one of the city's most important neighborhoods. It is a pioneer neighborhood where the American city confronts some of its most characteristic problems and where, if we solve them at all well, the whole world will know it.

The eyes of the world are indeed set upon the Morningside Heights community year in and year out. Students come from all parts of the globe to enroll in Columbia University, Teachers College, and Barnard College. Musicians flock to the Juilliard School of Music; religious leaders to the Union Theological Seminary and the Jewish Theological Seminary. Doctors seek research data in its pioneering medical institutions: Woman's Hospital and St. Luke's Hospital. Sight-seeing buses bring visitors to see the tall tower of the Riverside Church to the north and the great dome of the Cathedral of St. John the Divine to the South. The International House is a dwelling place for exchange students from the world over and the impression these foreign students take back to their native lands is determined largely by their experiences here.

"We represent over forty different nationalities," stated Dr. Fosdick, Minister Emeritus of the Riverside Church. "The whole community is interracial; all the institutions are interracial; and the result is that we can have here in unique fashion honest-to-goodness nonsegregated interracial housing."

In 1947, taking a good post-war look at their community, 14 of the educational, religious, and medical institutions located between 108th Street and 125th Street on the west side of Manhattan Island, banded together in a nonprofit membership corporation, Morningside Heights, Inc., to turn back the tide of deterioration which they saw sweeping the neighborhood. In conference with the city administration, they selected Lawrence M. Orton, one of the New York City Planning Commissioners, to be Executive Director.

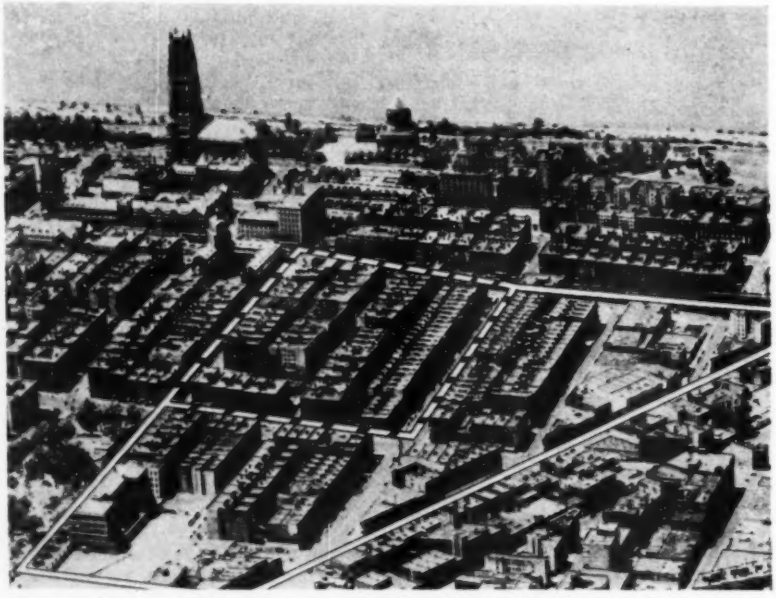
Like other urban communities subject to overcrowding intensified by wartime defense efforts, Morningside Heights was losing its stable middle-income group to the suburbs, where good housing and schools were more available. Crimes were mounting in the area—perhaps due to its growing inadequacy to meet the needs of its population. With the shift of population, ethnic tensions were added to its other problems.

### Street Lighting, Parking Meters

The institutions moved directly to meet these problems. They aided the local schools with material and consultant assistance. A public-safety committee secured better street lighting and an increased foot patrol. Parking meters were sought and authorized by the city. The staffs of the institutions cooperated with citizen groups in dealing with their common difficulties. A research program to define community problems was initiated and continues to date.

The passage of the 1949 Housing Act provided the legislative framework for Morningside Heights, Inc., to make a broad-scale attack on the housing problem. Conferences with New York City housing officials resulted in the scheduling of a large public-housing project for construction in 1953. To meet the needs of middle-income families, it became evident that the creation of a genuine Rochdale cooperative would be the best solution.

The result is a two-part plan for



**The new housing will be near many of New York's landmarks—Grant's Tomb, The Riverside Church, seminaries, schools, and International House, shown above. The dotted line encloses the site of the new cooperative; the solid line shows the borders of the proposed public housing, which will include the public school at lower left.**

By
**MARGARET BOULTON BARTLETT**
*Assistant Director*
*Morningside Heights, Inc.,*
*New York, N. Y.*

integrated housing which will clear away 25 acres of the present aged housing and replace it with both low- and middle-income developments.

### Two Big Projects Approved

New York City has signed an agreement with the Morningside Heights Housing Corporation, the cooperative's company organized under the New York State Redevelopment Companies Law, which will build the $12,500,000 middle-income project.*

This corporation is backed by the nine Morningside Heights institutions nearest the site, which have set aside funds to ensure its early development. It will eventually become a self-sustaining cooperative, completely owned by the tenants. Six 20-story buildings will be constructed on 10 acres of land, now two large city blocks. The equity down payment per room by tenant-cooperators cannot be precisely stated at the present time. These payments will be determined by excess of final project cost over the mortgage loan. The monthly carrying charges will average not more than $21 per month per room.

The nine institutions participating are: Barnard College, Columbia University, Corpus Christi Church, International House, Jewish Theological Seminary, the Juilliard School of Music, Teachers College, the Riverside Church, and Union Theological Seminary.

The Board of Estimate has also approved the plans of the New York City Housing Authority to use 15 acres of land adjoining the Morningside cooperative for a $27,000,000 low-income federal-housing development to rent at approximately $9 per room per month. The Housing Authority says that the project—to be known as General Grant Houses—will contain 1,950 dwelling units. The Federal Public Housing Administration gave final clearance to the project on January 13. Purchase of the sites began promptly and City Construction Coordinator Robert Moses, who has vigorously promoted this integrated development, has scheduled construction of General Grant Houses to begin during 1953.

The nine institutions and the New York City government are insistent that the Morningside cooperative and the General Grant Houses be considered as one over-all plan to help the community. Harrison and Abramovitz, architects for the cooperative, and Eggers and Higgins, architects for the public-housing project, will confer on mutual problems of site plan, design, and community facilities. Mrs. McIntosh says: "The corporation looks upon these two projects as complementary. The institutions are assuming the responsibility of working constructively toward the best possible redevelopment of the area in the interest of the community as a whole."

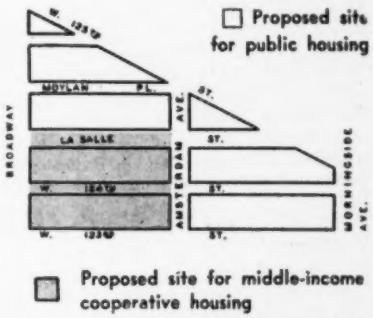
### Community Center Wing at Public Housing Site

Public-housing officials have agreed to build a two-story community center as a wing to one of the buildings on the public-housing site. It will provide day-care programs, hobby classes, and meeting rooms for both the cooperative and the public-housing families, as well as the surrounding community. An auditorium, two gymnasiums, and a swimming pool are available in the public school nearby.

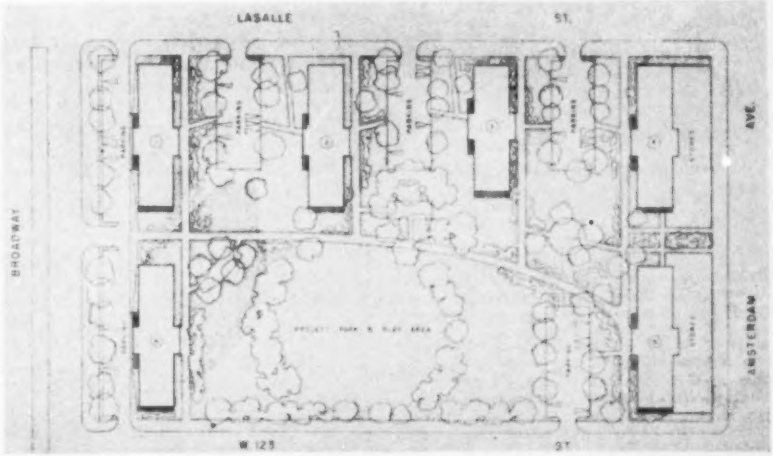
This consideration has been a keynote of the institutions' interest from the very beginning. They have made every effort to work with the citizens of the Morningside and Manhattanville communities. When it was determined by the New York City Planning Commission that Manhattanville, the adjoining neighborhood to the north of Morningside Heights, was an area in which Title I redevelopment would be sought, Morningside Heights, Inc., felt that a housing survey of the community was necessary in order to provide the Mayor's Committee on Slum Clearance Plans with whatever data were needed to prepare for such redevelopment.

A Community Advisory Committee was formed, composed of more than 40 agencies and individuals who were leaders of the neighborhood, or especially concerned with its future. Father George B. Ford, much-beloved rector of Corpus Christi Church and the secretary of Morningside Heights, Inc., was elected to be its chairman and has done everything humanly possible from these early days to promote the undertaking. Until the time that the Mayor's Committee actually proposed the project, the Community Advisory Committee met regularly, in office space generously provided by the Manhattanville Neighborhood Center through its Executive Director, Clyde E. Murray, and informed the sponsors of the needs of the people.

A survey of the community was undertaken by 250 graduate students of Teachers College who checked *every* residential building in the neighborhood, interviewing 3,679 different families (a 33⅓% sample). They amassed vital statistics on liv-




**Housing for different income levels side by side will avoid the pitfalls of a community segregated by income, and help create an integrated neighborhood.**




**This provisional plot plan is designed to afford each tenant maximum light and air possible, as well as views of the nearby river for many. Parking lots and playgrounds are conveniently provided.**

* The chairman of the Board of Directors is Mrs. Millicent C. McIntosh, President of Barnard College, and the Corporation President is Leonard J. Beck, International House Trustee.

The other elected officers are: John F. Morgan, of The Riverside Church, Vice-President; Joseph Campbell, Treasurer of Columbia University, Treasurer; and Thad L. Hungate, Controller of Teachers College, Secretary. S. F. Boden, who has acted as cooperative housing consultant from the beginning, is the project's expediter.

ing conditions (including present utilities and washroom facilities), incomes and expenses, family sizes and relationships, community connections and interests, as well as the specific desires of residents for better housing. Less than 5% of the families were unwilling to answer; the response to the call for redevelopment was genuine and far-reaching in the area.

Citizen interest in the projects has continued in a dynamic fashion. Convinced of the desirability of the two-part proposal, the Morningside Citizens Committee, representing civic-minded residents of the area, went to City Hall to tell the Planning Commission and the Board of Estimate that the community would be benefited by the developments. This committee published a pamphlet, *New Homes for Old*, which it undertook to deliver personally to every family on the cooperative site. Citizens and institutions have worked side by side every step of the way.*

The opposition of some site residents, always difficult to overcome when such projects are proposed, has been modified by the issuance of such material by the citizens and by the willingness of the proponents to scotch rumors, when and where possible, by personal interview or public meeting. The sponsors of the cooperative were able to secure the support of more than 30 public-interest groups, including trade unions, housing and planning organizations, political groups, veterans' associations, and important interracial social agencies.

The rebuilding of so large a part of Morningside Heights is expected to be the first step in rejuvenating the community. Obsolete and deteriorating housing, three-quarters of them more than 50 years old, now covers 90% of the land. There is little air, light, or play space. Most of the buildings are nonfireproof walk-ups. In their place will rise 20-story elevator-apartment buildings (six on the cooperative site and 10 on the public-housing site) covering less than 20% of the land. The cooperative development will contain more than five acres of paths, gardens, and play areas, in addition to ample off-street parking.

### Nonsegregation Emphasized

From its inception, Morningside Heights, Inc., has emphasized nondiscrimination and nonsegregation for the cooperative. It generally happens that when a new housing project is erected in a predominantly white neighborhood, while in theory it is nonsegregated, in fact it is almost wholly occupied by whites. Conversely, if erected in a predominantly Negro or other minority-group neighborhood, the new housing generally has the same population characteristics.

With this experience in mind, the agreement between the Morningside Heights Housing Corporation and the City of New York specifies that there shall be no discrimination against religious, racial, or nationality groups. The present mixture on the site makes it possible, with site resident priorities, to have integrated projects. Thus, Dr. Fosdick said to the City Planning Commission: "Morningside-Manhattanville is a frontier community. Hill and valley alike, we are interracial now, and these building projects — both public and cooperative—can be and will be —not in theory alone but in fact— interracial. We are pleading for inclusive housing—interracial, international, and meeting both low-income and middle-income needs."

### Special Features

Every effort is being made to keep costs, both initial and operating, as low as possible. While the accommodations in the cooperative will be superior to the adjacent public housing, they will not be luxurious.

Special features of the cooperative are planned to include balconies for a number of the apartments facing the south and the west. From the middle floors to the tops of the buildings, beautiful vistas of the Hudson River or Manhattan Island looking toward Central Park will be opened.

### Two Exposures for Each Unit

Buildings of modified slab design will have eight apartments on each floor. Four will be corner apartments, but breaks in the building will insure exposure to two directions for all eight, thus providing generous natural ventilation. Two high-speed, self-service elevators will serve each floor.

Each apartment is planned for efficiency and attractiveness, with direct access to bedrooms, kitchens, and living rooms from the entrance foyer, thus providing privacy to living areas. Living-dining-foyer space has been left open so that tenant-cooperators may adjust it to their own needs. Generous closets have sliding doors for convenience. Apartment wiring will allow for tenant-furnished air-conditioning units.

Buildings have been spaced about 160 feet apart and placed to give all rooms some natural sunlight each day. The landscaping will utilize the natural contours and rock foundation of the site to form a giant rock garden with emphasis on play spaces for children. A convenient shopping center is being provided at the project's east border.

Before we shall be able to see these buildings, many obstacles will have to be overcome. Probably the most difficult of these is relocation. Mrs. McIntosh states: "It is the full intention of the Corporation to provide accommodations that are 'safe, decent, sanitary, and at rentals site-tenants can afford,' according to the law." She stresses that "the speed of demolition will be geared to the ability to relocate the people according to their needs." New relocation procedures in New York City provide for close supervision by the New York City Real Estate Board. The actual work of relocation from the Morningside-Manhattanville site will be handled either by the Corporation or a competent real-estate firm selected by it.

### To Facilitate Relocation

The New York Housing Authority and the Morningside Heights Housing Corporation have agreed to give mutual preference for accommodations to residents of either site, to facilitate the relocation of this interracial community.

The combining of Title I and Title III housing in an integral fashion is a far-reaching development in city planning and is designed to carry out both the spirit and letter of the Housing Act of 1949. The *New York Herald Tribune* commented on January 14 that "The Morningside-Manhattanville redevelopment is the first of a dozen plans offered by the City Planning Commission to eliminate slum areas and rebuild entire neighborhoods by public and private cooperation."

The institutions are properly aware that the eyes of the world will note the success of this endeavor. David Rockefeller, an active trustee of the International House and President of Morningside Heights, Inc., put it this way:

> It was as though deterioration of the property created concern on the part of the institutions in the first place. But, seeing what benefits could come to the whole community, the institutions overcame the inertia which had existed and banded together to help make over the community as it should be.
>
> As I see it, the future of the freedoms of Western civilization is determined more than anything else by education, culture, and religion. . . . It's important that we not only live in that freedom but radiate it into our whole community. If we succeed here, it could reverse the trend of obsolescence everywhere.

* In a booklet entitled *A Report to the People from the Community Advisory Committee*, Morningside Heights, Inc., made the survey's findings available to every family in the area studied. Thousands of copies were distributed to inform the neighborhood of the facts of population and living conditions. A reprint of *Community at Work: A Lesson for Others* by Gertrude Samuels, published in *The New York Times*, was also widely distributed.

Copies of these and other documents on the subject are available from Morningside Heights, Inc., 90 Morningside Drive, New York 27, N. Y.

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# Street Work Is Only Part of Its Duties

**Titusville, Fla. (population 2,600) gets a tractor-maintainer-bulldozer and finds it able to help out with water and sewerage work as well as street maintenance**

By J. FLOYD GLISSON
*City Manager*
*Titusville, Fla.*

Unimproved streets go back into shape quickly with the help of the Huber.

A new street will appear here after the maintainer finishes clearing the way.

The refuse-disposal area looks more presentable after fill-and-cover operations get under way with the use of the new machine.

AT ONE TIME the county maintained the streets of Titusville, but it had to stop. Apparently, it had too much other work to do, and just couldn't get around to these streets. So, a few years ago, Titusville discovered, that if its streets were going to be kept in good shape, it would have to do the job itself.

One reason for the change undoubtedly is the healthy growth that the city has enjoyed in the past four years. We now have new streets that require care, more water lines, more drainage ditches. To do the job right would require a substantial portion of the County's forces.

A great number of our streets are not paved in the ordinary sense of the word. Most of them are surfaced with coquina shell, which makes a good serviceable roadway, but nevertheless requires care.

To grade and maintain these streets, we needed a machine able to keep them in smooth condition; it also has to build new streets for us. This means clearing away small trees, scrub, and brush, and also scattering the coquina that is hauled to the new street.

## Various Machines Investigated

We investigated several types of machines before we learned that one of the equipment distributors had a unit that looked as though it would meet our needs. The City of Cocoa, 25 miles south, had such a machine and found it more than able to do the job. The mayor and I made the trip to Cocoa to look at the machine.

The machine is a Huber Maintainer. It is a rubber-tired tractor and has a maintainer blade mounted under the body and a bulldozer blade on the front. Both are hydraulically operated.

We found that we could not only use it for street work, but could also use it for trenching to lay water lines. In using the Huber to dig the ditch and backfill for the water line we found that we could lay water pipe in about half the time that we formerly needed.

In addition, we found that we could use it for refuse disposal. It enabled us to transform our rat-infested dump heap into a good, neat landfill operation. We recently have begun paving streets, using an asphalt cold mix, and in this process we use the Huber to spread the material.

All in all, we have found public works activities stepped up greatly by the use of this versatile machine. With it around, we don't miss the county maintainer at all.

# Nine Miles of Water Main Hits "High C" in Flow Test

***Bowling Green, Ohio, tests a 20-inch mechanical-joint transmission main and gets excellent flow characteristics***

**Friction-Flow Tests of 20-inch Thin Cement-Lined Mechanical-Joint Cast-Iron Pipe**

| *Gallons per Day* | *Length of Main, Ft.* | *Net Head Loss* | *Loss @ 1,000 Ft. of Pipe* | *"C" W & H Formulae* |
|---|---|---|---|---|
| 3,310,000 | 45,592 | 35.8 feet | .785 foot | 148 |
| 2,600,000 | 45,592 | 23.3 " | .511 " | 146 |
| 2,350,000 | 45,592 | 21.2 " | .465 " | 139 |
| 1,645,000 | 45,592 | 10.8 " | .237 " | 141 |
| 1,183,000 | 45,592 | 6.2 " | .136 " | 136 |
| | *Test on Only Part of the Line Next to City* | | | |
| 2,600,000 | 32,700 | 17.7 feet | .54 foot | 142 |
| | *Test on Line at Night* | | | |
| 2,600,000 | 45,592 | 23.5 feet | .515 foot | 146 |
| | | | | "C" Average 142.5 |

Actual I.D. was same as nominal, all calculations by hydraulic slide rule.

**Here is the 20-inch mechanical-joint cast-iron pipe stretched out along the road prior to its installation and test.**

RECENTLY, a brand-new water-transmission main in Bowling Green, Ohio, underwent a friction-flow test and turned in an impressive flow result. This nine-mile stretch of 20-inch main consists of mechanical-joint cast-iron pipe. The main extends from the new filtration and treatment plant on the Maumee River to the corporate limits, where it ties into the general distribution system serving the city. This supply main was part of a complete new water-works project including low-lift pumping station from the river, filtration and softening plant, transmission main, and a number of 12-inch distribution mains located over the city to provide better fire protection. A new half-million-gallon elevated storage tank was placed in service at about the same time. A bond issue for $1,400,000 financed these improvements.

By D. W. JOHNSON
*Research Engineer*
*Cast Iron Pipe Research Association*
*Chicago, Ill.*

The new supply main offered several features advantageous to the study of flow characteristics. It was of good length, it was laid over a flat terrain with no hills or valleys, and required only a small number of fittings per mile of pipe. There was only 27 feet difference in the elevation between the pumping station at the river and the ground line at the corporate limits and this increase in elevation was a gradual slope almost imperceptible to the eye. The results of this friction-flow study is shown in the table at left.

### Pressure Readings

The pressure readings were taken simultaneously at both ends of the lines and the pumpage was taken from the recording chart on the new venturi meter at the plant. Excellent pressure readings were obtained as there were no large customers or factories on the line. The pressure gauge could read easily within half a pound and there were no violent pulsations or surges. The pressure gauges were calibrated with a dead-weight tester on the site immediately before being attached to the pipe line. However, there were a good number of ¾-inch farmer connections which had been installed at the time of laying the main. The water use from these ¾-inch services would be negligible when pumping at a rate of 3,300,000 gallons per day, and as a check on the importance of these small services, a special test was conducted late at night when their use would be at a minimum or practically nil. The results obtained for the test conducted at night was practically the same as those obtained at other times throughout the day.

There are several pumps in the station and the flow in the line was varied by operating different pumps and by throttling the valves on the discharge. It is common practice to operate the pumps with the valves only partly open, as the pumps tend to hog water and vibrate when the valves are wide open. This indicates that the transmission main has much less friction than was anticipated in the hydraulic calculations.

### Pipe Characteristics

The pipe was provided with a thin cement lining and mechanical joints. The net inside diameter of 20.0 inches was determined by measuring eight pieces of pipe in the storage yard. All of the pipe was brand new when installed, and it had been in service only nine months at the time of the test.

All of the water that has passed

through the line is from the Maumee River and had been treated by the lime-soda softening process. During the first seven months the water was recarbonated, but because of a change in chemical treatment, recarbonation had not been practiced for the last six to eight weeks. A pH of 9.5 is carried in the final water being pumped to the city, and the hardness is maintained at 90 ppm. The hardness of the raw water varies between wide limits.

The friction-flow tests showed the line to be in excellent condition. An average coefficient of C=142.5 by the Williams and Hazen formula for the entire line, including fittings, valves, air vents, blow-offs, etc., is extremely good. Undoubtedly the cement lining for smooth surface and mechanical joints for perfect alignment contributed to this high flow coefficient.

I wish to acknowledge the kind assistance and cooperation of Douglas McKnight, Utilities Manager for the city, in the conducting of the tests and for the gracious help of the employees under his jurisdiction.

# More Work Done More Easily With Less Manpower

By K. R. WARREN
*Superintendent of Water and Streets*
*Whittier, Calif.*

***Whittier, Calif., puts water distribution and street maintenance work in high gear with special, labor-saving equipment***

EVERY SUPERINTENDENT of water and streets has had to stretch his crews, whose numbers seem constantly dwindling, over a steadily enlarging area. Two "service stretchers" that we have used with great success have been a truck-mounted crane and a small truck-mounted asphalt spreader.

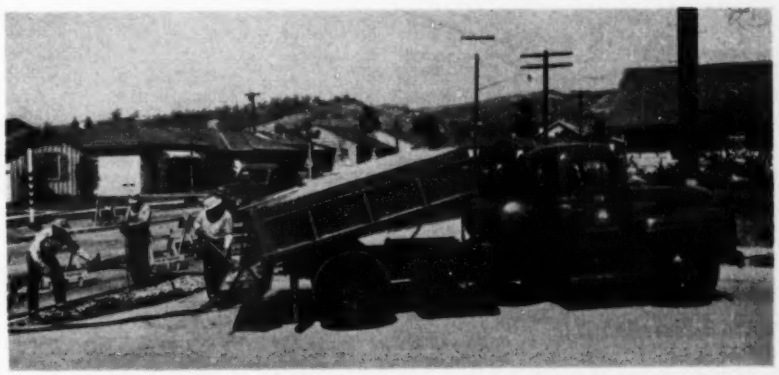
A few years ago the city acquired a Bucyrus-Erie Model DB5 Hydrocrane, an investment which has since paid off in hundreds of man-hours saved.

Laying 8,643 feet of 14-inch cylinder pipe was the crane's first job. This was accomplished so effectively that later we purchased a Model H-3 Hydrocrane. Together these machines have been used to lay water mains, excavate trenches for short sewer-connection jobs, excavate for valve removal, and unload cast-iron pipe for stockpile. In addition, both cranes have on occasion been rented to Whittier's park department to assist in the removal of trees.

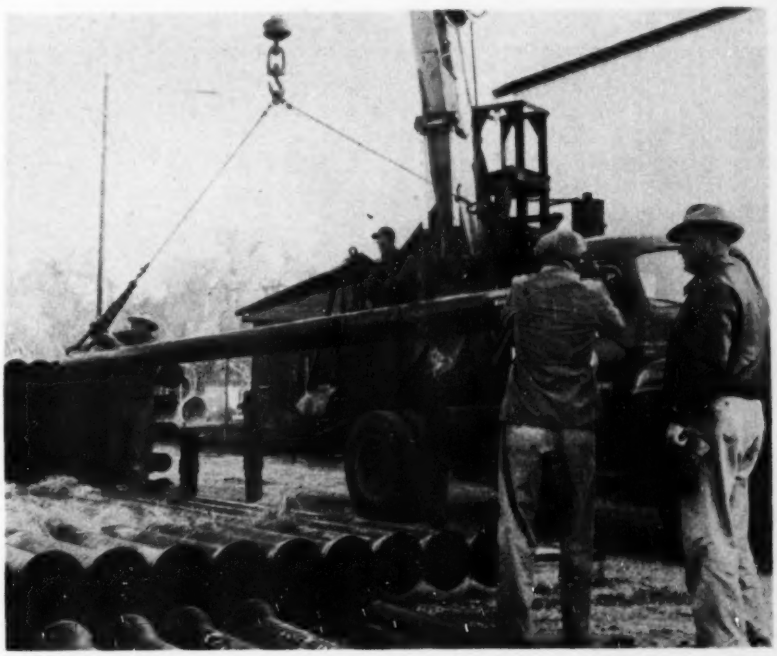
With the use of either Model KB-5 or Model H-3, Whittier's water crew, working with 6-inch, 8-inch, and 10-inch mains, has been able to lay and caulk cast-iron water-main pipe with greater speed than a trenching machine can dig a trench.

Our street department, too, has had its share of manpower savings. Recently, we began using a new maintenance truck with an Essick oil tank and compressor mounted at the rear of the cab. We have a discharge line for the oil on each side of the tank so that two spray nozzles for asphalt emulsion or oil may be used at the same time, a convenience which permits our street force to complete each job quickly.

The dump body itself is divided longitudinally into three sections which permits carrying two sizes of rock, with one compartment reserved for sand. There are separate gates on each compartment, allowing sand or gravel to be unloaded as needed into a small hopper, which makes it easy for our men to shovel material at the convenient height of 18 inches from the ground.



**While one man unloads gravel from the convenient hopper, another is busy applying asphalt emulsion from a spray nozzle attached to the new Essick oil tank.**



**Only three men besides an operator are needed to unload cast-iron pipe on the stockpile when working with this Bucyrus-Erie Hydrocrane.**

# *"Fun in the Sun"—and at Night, Too*

## Salina recreation program grows by leaps and bounds

By HOWARD T. RICHTER
*In Cooperation*
*With the Recreation Commission*
*Salina, Kans.*

"FUN IN THE SUN" is the current slogan for the summer recreation program in Salina, Kans. (1952 population 28,000), headed by Dave Zook, recreation director. The program received its start in 1948, and has grown in all directions since that time. Before then, we had no organized recreational program that embraced all age groups, but one was established under the able leadership of Mr. Zook, whose previous post was in Decatur, Ill.

We wanted our program to care for the needs of the very young and the older folks, too. With this in mind our younger set was given a system of "Tot Lots" equipped with sandpiles, swings, and monkey-bars. These are enclosed with a picket fence to corral the tots while a supervisor leads them in their activities. The older folks enjoy the croquet courts, outdoor ping-pong tables, shuffleboard, tennis, square dancing, and instruction in weaving, ceramics, woodworking, leather craft, and the like.

To gain a rough concept of the scope of our program in terms of popular acceptance, we had a total attendance in 1952 of 261,187 at our playgrounds and playfields, community centers, and special activities. We are proud of the fact that our program has grown immensely while the tax levy required for its support has diminished from .86 mills in 1948 to .78 mills in 1951. In 1952 the tax levy was increased to .91; our first increase since our inception. One reason for this was the opening and enlargement of Smoky Hill Air Force Base near Salina. Expenditures for the program in 1952 amounted to $34,805. This amount was broken up into Administration ($8,580), Community Centers ($5,675), Playgrounds ($16,860), and Special Activities ($3,690).

As an indication of the reception given the "Tot-Lots," two more were added to bring our total to eight last year. The lighting facilities on children's play areas were increased during the season just past; we have grown from one softball field to six at present, and from seven to fourteen play areas. New bleachers were added on all the play areas; they are used in winter on the high school and college football fields. Officials provided by the recreation commission presided over approximately 451 baseball and softball games under the sponsorship of the commission and the YMCA.

One of the most interesting activities for the younger set came as the result of the flooding of the tennis courts, which provided excellent ice-skating during the winter months. The park department and recreation department worked together in the maintenance and supervision of this portion of the program. The urge to participate has been aided greatly by recorded music and warming fires.

### Some Summer Activities

One of the most popular activities centers around the shuffleboards throughout the summer. On any summer evening folks from all age groups are to be found enjoying this game. Horseshoe-pitching courts also receive great use. Other items in the facilities provided include 14 summer playgrounds, two school gymnasiums, one community center, two roque courts, one croquet court, one athletic field. 11 baseball diamonds, and one hall. These are supplemented by one ping-pong area for outdoor use, 18 softball diamonds, six lighted softball diamonds, 12 all-weather tennis courts which are flooded for ice-skating in winter, two swimming pools, and one park recreation building.

Under the heading of athletics are such things as softball leagues both for boys and adult girls, playground track teams, sports tournaments, tennis and swimming instruction programs, elementary school playdays, and softball leagues, and the softball-baseball program which is co-sponsored with the YMCA.

### Square Dancing

One of the most colorful and interesting activities is the square dancing carried on at the tennis courts during the evenings; this has enjoyed a wide acceptance among teenagers and older folks. Vying with square dancing for the interest of the younger folks are song contests, playground rhythm units, dramatic groups, summer story-telling groups, community sings, and movies of both an educational and entertainment nature.

Another interesting section of the program deals with arts and crafts. Among the many things made by those interested in this group of activities are rugs, handbags, articles of ceramics, leathercraft, and wood-

**Here Salina's younger set spends many a happy hour safely under the watchful eye and guidance of the Tot-Lot supervisor.**

craft. These are displayed at a city handicraft exhibit, co-sponsored with the YWCA and various recreation training institutes.

Our recreation commission engages itself in many services to the community other than strictly recreational activity. These include such things as free song-book service, ball-diamond reservations, training institutes for recreation leaders and for summer-playground leaders, and the planning and conducting of parties and picnics. Other services include providing speakers for organizations, consultation service on recreation, advice on backyard playgrounds and assisting other communities in program planning. The commission also supplies bulletins for home or club use; helps coordinate summer activities; furnishes picnic equipment free of charge, assists churches, clubs, and schools in organizing programs of recreation, and plans and conducts athletic events for schools and organizations. Last, but certainly not least, on the list is helping to organize recreation clubs, furnishing elementary school recreation leaders and even helping old Santa Claus by providing well-equipped helpers.

To round out our recreation program we included along with the things already mentioned Joseph Lee Day programs, playground lantern parades, playground arts and crafts exhibits, and social-recreation parties. Then, too, there is a hiking program, Carver Center program, Family Fun programs, Young Adult Club program, the recreation-shop program, the Sacred Heart recreation hour, Northside Club, and the Christmas letter and radio program.

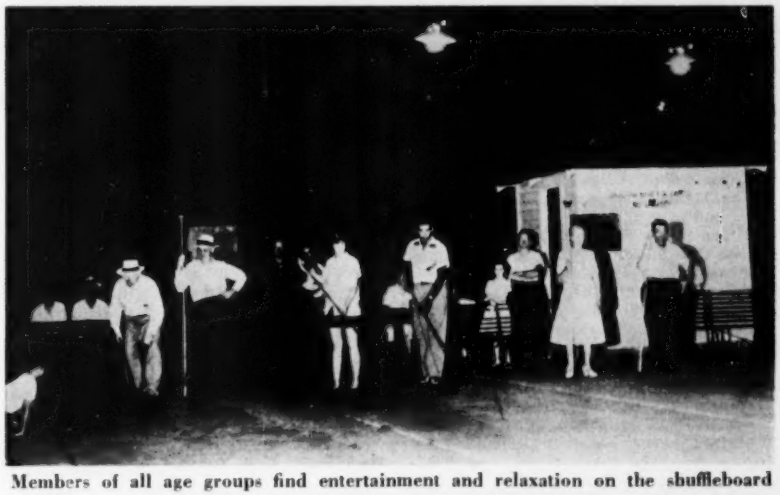
Our programming provides for servicemen from nearby installations. Already Saturdays and Sundays have been set aside for special servicemen's activities. Plans are being formulated which include servicemen in the summer play program.

### Importance of Trained Supervisors

Incorporated in our summer playground program bulletin, titled "Fun in the Sun," are some very practical hints for the benefit of the playground supervisors. These cover such things as the establishing and maintaining of group spirit—a *must* in any successful recreational program, a gentle reminder that the playground leaders are responsible not only for the carrying out of their duties literally but that theirs is a greater and much more far-reaching responsibility since on them depends to a great extent the shaping of the character of the children and teenagers whom their guide.

Probably the most important point impressed on each new leader is that of learning how to determine each child's opinion of the group leader and how to so mold that child as to develop his best qualities and help him fit into the group harmoniously.

**Here one of the artistically inclined gives vent to the creative urge in rug-making. Among other crafts practiced are leathercraft, woodworking, ceramics, and making novel purses.**



**Members of all age groups find entertainment and relaxation on the shuffleboard courts.**

**Square dancing on the tennis courts provides one of the most colorful of our many recreational activities.**

# How a Small City

**Sanford, Fla., populatoin 15,000, gets 31 new automotive equipment units in a single order; this article tells how the bids were evaluated and selections were made**

By THOMAS L. LEMON
*City Manager*
*Sanford, Fla.*

YOU CAN'T RUN a first-class city with second-class equipment, so the city administration of Sanford, Fla., has set about to supply itself with new, first-class rolling stock for most of its departments.

This forward step took place after the city council had received data, carefully tabulated, showing that over $21,000 had been spent for parts alone over the last 12 months to keep the present fleet of equipment rolling. In addition, over 6,000 man-hours were consumed in repairing the equipment. This does not take into consideration the loss of time on the job and the delay in work that these breakdowns caused.

The new equipment that the city has acquired includes the following items:

- Seven ½-ton pick-up trucks
- Three ¾-ton pick-up trucks
- Three 4-door police cars, fully equipped
- Ten 1½-ton trucks with hydraulic dump bodies
- Three 2½-ton dump trucks
- One 600-gallon bituminous distributor on a new chassis
- One aggregate spreader
- One bulldozer and grader
- One refuse truck with a Gar Wood packer-type body
- One new truck chassis for a Gar Wood packer-type body

In purchasing this equipment we weighed several factors before making a final decision.

Of prime concern was, first, quality of bidder's product; second, the ability of bidder's product to meet city-job requirements; third, standardization to avoid the inconvenience of odd, "orphan" equipment on our hands; the fourth consideration was price.

**All equipment carries the Seminole Indian head insignia.**

All bids were thoroughly checked, evaluated, and tabulated by myself and then were forwarded to consulting engineers Robert M. Angas and Associates, of Jacksonville, Fla., for engineeringly sound advice as to factors pertaining to power, load capacities, and motor capabilities. The consulting engineers also provided experience data pertinent to each type of equipment.

My evaluations and the evaluations of Robert M. Angas were, except for a few minor exceptions, identical. Our evaluations were consolidated and recommended to the Sanford City Commission. All recommendations were accepted with the exception of the new packer-type garbage-collection body and chassis.

The advertisement requesting bids was designed so that all responsible companies could submit bids on their respective products. The bidding was not closed to anyone. Many salesmen were interviewed and reports on various makes of equipment as reported in THE AMERICAN CITY and other publications reaching each field were studied. All truck and equipment dealers in Sanford were invited to a meeting at City Hall for a full evening of discussion on trucks and equipment without reference to brand or make. Subjects discussed were:

1. Payloads, capacities
2. Brakes, axles, springs, tires
3. Tune up, warm up
4. Driver responsibility
5. Lubrication and fuel
6. Wheel base, body length
7. Ratio between load and truck size
8. Miscellaneous subjects

All city truck drivers and opera-

**The asphalt distributor (left) has a full circulating 12-foot spray bar; the bulldozer (center) has to be adaptable to many tasks, and the aggregate spreader (right) has a 12-foot width as well as an agitator and a feed roll.**

# *Buys New Rolling Stock*

**Ten pick-up trucks were acquired. Standardization of service and operation was an important consideration in their choice.**

tors were present at this meeting and their questions and suggestions were welcomed. Successful bids were as follows:

1. Three ¾-ton nominal-rated pick-up truck. Seven ½-ton pick-up trucks. Chevrolets selected.

These pick-up trucks are for the use of four department heads and the building inspectors, carpenter, superintendent, painter, the water superintendent and shop mechanics. This group of trucks was chosen on the basis of best offer and adaptability of equipment to city jobs. Standardization for service and operation was an important consideration.

2. Nine 1½-ton nominally rated trucks. One 1-ton nominally rated truck. Dodge trucks selected.

The one-ton Dodge truck is equipped with 9-foot flat body and no hoist for the sewer department. One of the 1½-ton trucks is equipped with a 12-foot flat bed with no hoist for the park department. One of the 1½-ton trucks is equipped with a 12-foot-by-7-foot-by-11½-inch metal dump body with hoist for garbage department to haul hot cans and non-burning refuse from incinerator. The other 7-foot 1½-ton Dodges are equipped with 14-foot platform dump bodies with hoists for use in garbage, trash, and street departments. All the 10 trucks have conventional cabs and are equipped with governors. This group of trucks was chosen on basis of standardization, price, quality and ability to meet city job requirements of 5,000-pound payload. The proposal of successful bidder included an analysis of weight distribution. This same type of analysis is considered in all bids for equipment.

3. Three 2½-ton nominally rated dump trucks with 2-speed axles and 5-speed transmission. Internationals selected. These three trucks are equipped with conventional cabs and with governor. They were chosen on the basis of all the qualifications mentioned above and are rated and capable of carrying a 12,000-pound payload.

4. One City Manager's automobile. Two police cars. Oldsmobile "88" selected.

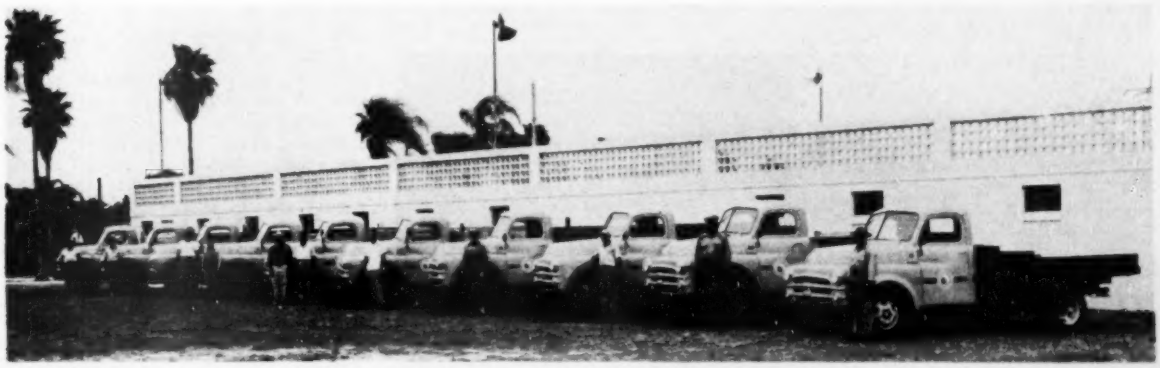
These cars are 4-door sedans and are all equipped with police radios and latest type auxiliary equipment. The City Manager's car has hpdromatic and the two police cars have regular transmission. It is our throught that the heavier automobile will prove to be as economical and will be as maneuverable for police work as the small cars.

5. The bulldozer purchased was a Model TD-6 International diesel crawler tractor equipped with 16-inch track shoes and one Model 6WG-2 Bucyrus Erie hydraulic-controlled bulldozer mounted on the tractor. This piece of equipment is designed for the type of work which the city requires, such as light street work, city dump work, and general maintenance and construction.

6. In the purchase of the bituminous distributor, there was considerable debate. The features and capacity of the Etnyre Model MX, Style RE, 650-gallon distributor were finally found to be the most acceptable. We felt that the 12-foot full circulating spray bar was best suited for our streets and crew.

7. The aggregate spreader chosen was a "Buckeye Material Spreader," 12-width, with agitator and feed roll.

8. The packer-type garbage-collection unit chosen was a 12-yard Pak-Mor mounted on an International



**Nine 1½-ton trucks and one 1-ton truck were chosen on the basis of standardization, price, and quality. All 10 trucks have conventional cabs, are equipped with governors, and meet the city job requirements.**

truck, Model L-152 with conventional cab.

The city had a 9-yard Gar Wood packer-type refuse-collection unit mounted on a 1946 truck chassis. We sent the collection unit back to the factory for overhauling and then mounted it on a new GMC chassis. This gives the city two refuse-collection units of the packer type and will enable the city to provide more frequent and more adequate collection service.

Successful bids for the 31 pieces of equipment amounted to $83,225. Trade-in for the old equipment amounted to $20,454. The balance is being financed over a three-year period.

The annual cost of these payments will be less than the annual amount put in the budget for replacing a part of the old equipment each year. Thus the cost will not be more than would probably be borne by the city anyway.

All the new equipment will receive a paint coat of armour yellow, and will have a distinctive Meyercord decalcomania insignia of the city seal (Seminole Indian head) on each side of each piece of equipment. The police cars, used chiefly to expedite traffic control, will be of canary yellow.

Monthly schools for truck and equipment drivers are being set up in cooperation with the truck dealers of Sanford for more efficient care and use of the new equipment.

**The three 2½-ton dump trucks are each capable of carrying a 12,000-pound pay load.**

**The three four-passenger cars, although in the moderately heavy class, are expected to prove as economical and maneuverable as smaller cars.**

**Two packer-type trucks now are available to collect the city's refuse.**

## *Why a Local Health Department Needs a Laboratory*

IN A PAPER DELIVERED last October at the Central Regional Meeting of the Council for Local Public Health Services, and reprinted in the February 1953 issue of *Public Health News*, Dr. Daniel Mergsma, New Jersey State Commissioner of Health, gave the following reasons for advocating that local health departments have their own laboratories:

Certain test samples—milk, for instance—will not comply with standards of laboratory procedure unless planted in the laboratory on culture media within a certain time limit after they are gathered. "Clearly," says Dr. Mergsma, "if a sanitarian were to try to pick up a sample of milk at some point from which it would take him an hour or an hour and a half just to travel to the (State) laboratory at Trenton, it would greatly limit the service of that sanitarian." Changes in the bacterial count during that time would also give you a false reading.

If a physician needs a quick laboratory confirmation of his diagnosis of a disease, he cannot wait to mail a sample of some secretion to a distant laboratory, but should be able to have the work done promptly locally.

In the area of preventable diseases, a knowledge of the local conditions is essential in tracing the spread of disease, in spotting "carriers" and in knowing which people have been exposed.

## *The Decline of the General Property Tax*

IN 1950 the property tax contributed only 14% of all tax revenues compared to over 50% in 1932, according to an article in the March 1953 issue of the *National Tax Journal*, by Mabel Newcomer, Professor of Economics at Vassar College.

Assessed values have not kept pace with wealth, and the lag in the assessed values behind market values has been accentuated by the sharp rise in real estate values.

Continual complaints of the property tax as unduly heavy are often due to inequalities still prevailing in assessments and to the growing exemptions which have narrowed the tax base. According to Professor Newcomer, the recent lag in assessments should provide a substantial margin in many areas for increased levies even without restoring exempt property to the tax rolls. However, any such increases will make further improvements in assessment performance of even greater urgency, and local authorities will find it important to reconsider policies of property tax exemption.

# A Survey of Municipal Employees' Attitudes Toward Their Jobs

By BILL N. TAYLOR
*City Manager*
*Wichita Falls, Texas*

HOW EFFECTIVELY does management communicate with employees, and how much freedom do employees have to talk back? An organization with a policy of aggressiveness should provide a means of communication from bottom to top. Management can no longer depend upon its own ideas of what employees want. Neither can we keep abreast of their thinking by picking up random bits of doubtful information which trickle upward through the grapevine.

For these reasons the municipal administration of Wichita Falls decided to utilize an attitude survey that would provide a direct channel of communication from the work group to the front office.

We made up a set of questions which concerned working conditions, supervision and management, opportunity and job security, and other miscellaneous items. These questions, along with an instruction sheet, were handed to each employee. In the instruction sheet we asked for their assistance and advice in giving us the information we needed in order to improve their working conditions. We asked them to answer each question honestly and sincerely, with complete freedom of expression. We asked them not to sign the questionnaire.

## Distribution and Follow-Up Procedure

The questionnaires were distributed personally to each employee at noon on a Saturday. The instruction sheets requested that the questionnaire be put in the attached envelope, sealed, and dropped no later than the following Monday morning in a ballot box which was furnished. This gave each employee ample time to take the questionnaire home with him, fill it out, and get it back over the week-end.

There were three key questions which were more important than all of the others combined. Answers to these questions particularly gave me the most positive gratification of all. The survey reflected that 97% of our employees felt either mildly or definitely that they were a part of the organization; 91% felt that their job was "quite interesting"; and 99% felt that their contribution to the successful operation of the city was important. The affirmative answers to these questions by such an overwhelming majority leads me to the definite conclusion that municipal employees have a high respect for the services which they are performing for the welfare of the community.

In order to make the results of this survey as valuable as possible we have been conducting a series of conferences with the department and division heads in which weaknesses in that particular department are discussed. We are asking the supervisors to try immediately to improve the situation in those areas where improvement is indicated.

In conclusion, it is our considered opinion that nothing but good can come from one of these periodic morale audits.

## TABULATION OF RESULTS OF EMPLOYEE ATTITUDE SURVEY
## ALL DEPARTMENTS COMBINED

| Working Conditions | No. | % |
|---|---|---|
| *When I am given a job to do, my instructions are such that:* | | |
| I have a great deal of trouble knowing just what is expected of me | 11 | 2 |
| I am sometimes uncertain | 113 | 25 |
| I always know exactly what is expected | 332 | 73 |
| *If you have a grievance, how do you feel that it will be handled?* | | |
| Would be ignored | 31 | 7 |
| Satisfactorily | 309 | 68 |
| Don't know | 109 | 25 |
| *Does your supervisor think of you as a human being or only as a cog in a machine?* | | |
| Cog in a machine | 23 | 5 |
| Human being | 360 | 79 |
| Don't know | 73 | 16 |
| *To what extent are you allowed to participate in decision-making on matters relating to your work?* | | |
| Not allowed to | 41 | 9 |
| Sometimes | 185 | 41 |
| Almost always | 228 | 50 |
| **Opportunity and Job Security** | | |
| *Do you believe that you have an opportunity for advancement with the city?* | | |
| No opportunity | 52 | 12 |
| Some opportunity | 270 | 60 |
| Good opportunity | 128 | 28 |
| *How sure are you of being able to keep your job as long as you do satisfactory work?* | | |
| Not very sure | 25 | 6 |
| Reasonably sure | 255 | 56 |
| Very sure | 173 | 38 |
| *Should seniority or ability be more important in keeping employees on the job when layoffs become necessary?* | | |
| Seniority | 131 | 30 |
| Ability | 264 | 60 |
| No opinion | 45 | 10 |
| *When it comes to my ability and experience, I feel:* | | |
| I have more than my job takes | 69 | 15 |
| My job requires some ability and experience that I don't have | 36 | 8 |
| They fit my job fairly well | 346 | 77 |
| **Supervision and Management** | | |
| *When it comes to taking up problems with those above me in the organization . . .* | | |
| I always feel free to go to them | 358 | 80 |
| I have tried it, but always get the "brush-off" | 19 | 4 |
| I don't feel like doing it very often | 71 | 16 |
| *When you do a good job and feel that you deserve a little praise, how often does your supervisor praise you?* | | |
| Never does | 66 | 15 |
| Once in a while | 150 | 33 |
| Nearly always says something nice | 235 | 52 |
| *Do you feel free to express your opinion to your supervisor even though you might disagree with him?* | | |
| I don't feel at all free to express an opinion | 32 | 7 |
| I am not sure | 76 | 17 |
| I am completely free to express myself about anything at any time | 346 | 76 |
| *Do you think the supervisory group, as a whole, is interested in the welfare of the employees?* | | |
| Little or no interest | 25 | 6 |
| Mild (or some) interest | 170 | 38 |
| Considerable or extreme interest | 254 | 56 |
| *When it comes to knowing how I am doing on my job:* | | |
| My superior always lets me know how I stand | 235 | 53 |
| Sometimes I am told but only when something goes wrong | 90 | 20 |
| No one ever talks with me about that. | 117 | 27 |
| **Miscellaneous** | | |
| *To what extent do you feel that you are a part of and "belong" to the organization?* | | |
| I don't feel that I am a part of the organization | 12 | |
| Sometimes I feel that I am a part and then again I don't | 77 | 17 |
| I definitely feel that I am a part of the organization | 358 | 80 |
| *What does your family think of your job with the city?* | | |
| Don't like it | 9 | 2 |
| Don't care one way or the other | 44 | 10 |
| Feels that the city is a good place to work | 396 | 88 |
| *To what extent do you find your work with the city interesting?* | | |
| Very dull | 2 | — |
| Neither dull not interesting | 42 | 9 |
| Quite interesting | 407 | 91 |
| *If I could have the same job in some other firm at the same pay, I would rather* | | |
| Stay with the city | 404 | 89 |
| Take the other job | 7 | 2 |
| Either one would be all the same to me | 41 | 9 |
| *Do you feel that the attitude of our employees in general has improved in the past year?* | | |
| It has improved same | 316 | 71 |
| It has not improved | 31 | 7 |
| Don't know or no answer | 100 | 22 |
| *Do you feel that your contribution to the successful operation of the city is . . .* | | |
| Very important | 304 | 67 |
| Fairly important | 145 | 32 |
| Of little or no importance | 6 | 1 |
| *I think this check list is . . .* | | |
| A waste of time | 19 | 4 |
| A good idea—I would like another one | 321 | 71 |
| All right but I don't see any good it will do | 111 | 25 |

EDITORIAL NOTE: The original questionnaire contained 40 questions. Half of them are tabulated here. Any reader of THE AMERICAN CITY may obtain the complete questionnaire on application to Mr. Taylor.

Out of 534 employees, 458 returns were tabulated—85.8% of the employees. Delinquent returns: 4 received too late to tabulate; 9 returns mutilated; 63 no returns (attributed to sickness, vacation, illiteracy, or lack of interest).

# No Formal Contracts Under $1,500, Says Schenectady

By WARD ALEXANDER
*City Purchasing Agent*
*Schenectady, N. Y.*

FORMAL contract limits were raised from $500 to $1,500, retaining competitive purchasing by informal procedures by the City Council of Schenectady, N. Y., at the close of a public hearing on October 27, 1952. The City Purchasing Agent was granted discretionary powers to "waive surety" in calling our bids, and to "authorize purchases without competition" under emergency conditions, with the approval of the City Manager regardless of amount of moneys involved.

Adoption by the Council of this local law No. 3 is a distinct gesture of encouragement to contractors to do business with government. It is a shaking off of obsolete purchasing procedures.

Few besides the City Purchasing Agent and contractors can appreciate the advantages of such a law. To them it means not having to appear before the governing body for authority to purchase; time saved between opening of bids and awarding contracts; elimination of printing such notices in the minutes of the Council; elimination of time lost between Council meetings, some every two weeks and others once a month; the saving in cost requiring surety and bonds (these costs are reflected in the over-all price of each contract), and savings in time enabling the contractor to bid firm prices knowing that he will be awarded the contract within a reasonable time and will not be caught by rising market conditions. One important factor which must not be forgotten—enabling the Purchasing Agent to obtain deliveries to the various departments within a reasonable time, again saving time and money for these various units of government which cannot be measured by the yardstick of dollars.

### Companion Legislation Necessary

Such a law, however, without the proper companion legislation can have tremendous adverse political repercussions, both to the legislators and to the purchasing agent regardless of their sincerity and integrity. We are preparing legislation establishing the practices and procedures under which the City Purchasing Agent shall operate. Many city purchasing agents will regard this innovation as a milestone. This legislation, if adopted by the City Council, will:

- Spell out the scope of authority and the meaning of contractual services, equipment, and supplies
- Grant authority for cooperative purchasing.
- Establish standards and standard specifications.
- Require department and bureau heads to file detailed estimates of their requirements as called for
- Authorize the sale of surplus equipment or scrap under the same procedures as followed in purchases
- Grant authority for emergency purchases
- Require the using agency to submit a list of surplus stock as called for by the Purchasing Agent
- Require the encumbrance of funds on all purchases and contractual services prior to the issuance of purchase order except in emergency.

## Springfield, Mass., Civil Defense Agency Is Standing By

THE Springfield Civil Defense Agency has been active since its creation by ordinance in September 1950. The first important project to be undertaken was the development of the Control Center. A private institution agreed to furnish the necessary space without cost to the city. Structural work and the cost of the equipment came out of public funds. However, much of the equipment used came from the World War II Control Center.

### Division into Districts

The city is divided into 11 defense districts, each with a headquarters with telephone facilities. In addition to the Warden's division, there are 15 other divisions made up of 74 sections.

Training classes since March 1951 have included fire protection and police protection, the latter carried out by Chief Raymond P. Gallagher of the Springfield Police Department and lecturers of the Federal Bureau of Investigation. Volunteer food inspectors have been trained, as well as other volunteers to carry on as environmental sanitation inspectors. Just recently, a group of motorcycle riders have been taken into the organization to act as messengers. A course is now going on to train householders in what they should do to provide protection for their families in the event of an air attack. By attending a session of two hours in one evening, information on the following subjects may be gained:

Why Be Prepared?
What to Do About Electricity, Water, Gas
Protection from the Atomic Bomb
Fire Fighting for Householders
What You Should Know About Biological Warfare
Emergency Action to Save Lives

This training is given on a neighborhood basis to make it easy for residents to attend a class in their own areas. Many other phases have been carried out, including a truck survey and an agreement with the oil industry for tank-truck servicing of defense vehicles at motor assembly parks.

Completion of the Control Center over a period of 13 months helped to convince people that something was being done for their protection. We used the rotogravure pages in the *Springfield Republican* last November to acquaint them with this fact. Permission to use the page of pictures shown at the right has been granted by that newspaper.

WILLIAM P. FORREST
*Director*
*Civil Defense Agency*
*Springfield, Mass.*

Springfield Republican

• SPRINGFIELD, MASSACHUSETTS •

A.B.C. TEAMS

"Atomic . . . Biological . . . and Chemical" teams work in conjunction with other sections of the main control room. Jesse O. Richardson of the "A" team and Dr. Michael O'Connor of the "B" team are shown with Boy Scout messengers, Charles Kempton and Barry Glickman, used within the Center to carry messages from the Ether Room.

MASTER MAP

A 13-foot by 17-foot quadrant map of this area in the central room of the main control center. All services listed on this map so that all may know the immediate points of damage, etc. George Terrell, III. (left), Plotting Officer; Sidney Glidden, Map Officer; and John Macmillan, Deputy Controller, man this important part of moving the markers to damage points as relayed from the director's desk. Master control light board is shown in the background.

RADIO SECTION

Guarding against the possible loss of telephone hookup, amateur radio operators in this area are organized through field setups direct with the Center. Kenneth Hardy (left), Springfield Co-ordinator on the 10-meter band, and David W. Lloyd, Emergency Co-ordinator on the 2-meter band, are shown as they worked during the recent simulated exercises.

HIGH COMMAND

Central control of the Center starts here. From the left are: George M. Tompkin, Jr., Deputy Control Officer; Donald Metzger, Deputy Director; William P. Ferren, Director of Civil Defense; and Mayor Daniel B. Brunton, functioning in his capacity as head of the city.

MESSAGE FILTER CENTER

In another section of the Center, all telephone and radio messages are screened for accuracy by Miss Jean Youngdale, District Fire Chief; Walter A. Baumgartel, Controller, Maynard O. Saunders and Chief of Communications, Thomas M. Ross.

SOUTH PANEL

. . . of the main operations room has these staff members covering, Ralph W. Benner, Flame Protection; Charles Byrne, Rescue; Arthur Pratt, Engineering; Mrs. Ruth Lloyd, Public Utilities (Electric, Gas and Water); Victor Mori, Transportation; and Arthur Wiley, Inventory Control on all emergency equipment. They are shown left to right as they worked during a recent problem.

TIME OUT

During a simulated attack, these telephone operators took time out to order that their picture could be taken. From the left, they are: Mrs. Gertrude Thompson, Mrs. Alberta Herlihy, the misses Marion Jones and Marion Towle; Mrs. Dorothy Hackler and Alice Lemoeche, Chief Operator. Calls from zone controls in the field are received at this telephone center.

RECEPTIONIST

Mrs. Mary Saunders controls the only entrance to the secret Center. Direct phone with an outer guard system prevents anyone from even entering the building where the Center is housed. Mrs. Zelda Fields, Director's Secretary, is the still member waiting her clearance at the door.

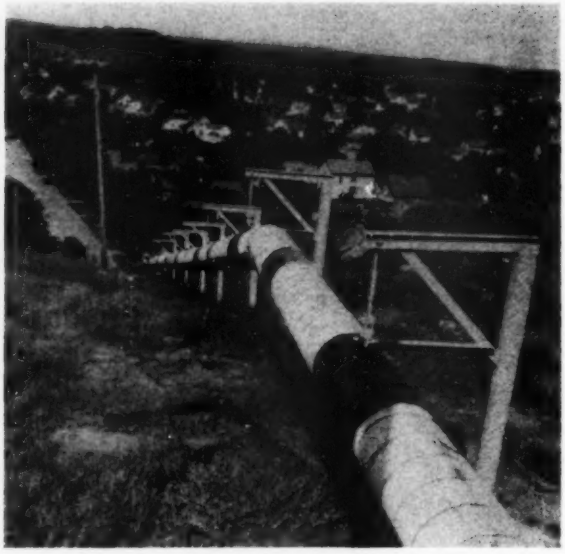
NORTH PANEL

. . . has another important segment of the over-all protective force. From the left are: G. Donald Metcalfe, Chief Warden; William Hassett, Health Officer; Dr. Alfred Glickman, Chief Medical Officer; Captain Thomas Moriarty, Fire Co-ordinator; and Sergeant Arthur Cagan, Police and Bomb Reconnaissance.

**PREVIEW OF THE BRAINS OF A CITY IN DISASTER—** It isn't so much what these teams are doing as the fact that they are ready to do these things should disaster strike Springfield and its 162,000 people. Almost equally important is the strong local support of the volunteer civil defense effort, as evidenced by this full-page publicity in the *Springfield Republican.*

# *The Water System Works Better Now*

**Ishpeming, Mich., rehabilitates its water system, adds more storage, supplies new controls and pumping capacity**



A view of the new overhead water line.

By O. E. STOLEN
*City Manager*
*Ishpeming, Mich.*

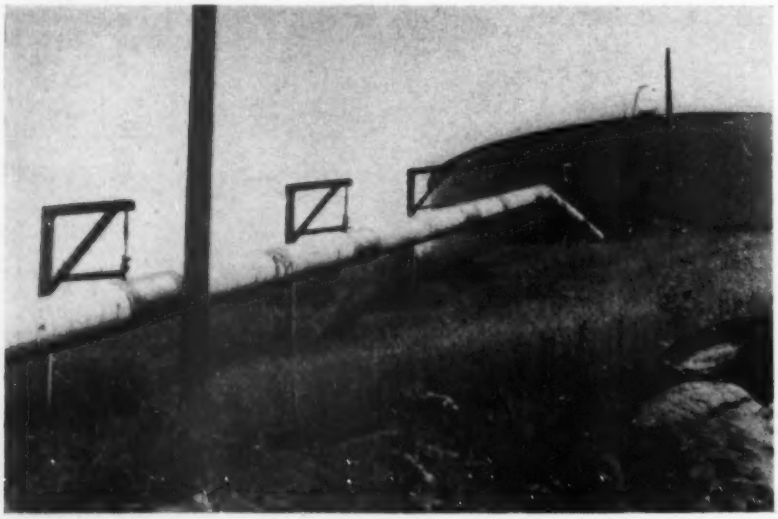
IF YOUR PROPERTY catches fire in the City of Ishpeming today, you have less to worry about than you would have a few years ago. The reason is that the city has spent approximately $600,000 rehabilitating the system, adding more storage, and putting more pep into the pumping facilities.

For example, the water can get throughout the system in better shape now. In the past two years the city has replaced 14 miles of wood water pipe with mechanical-joint cast-iron mains. These mains varied from 3 to 12 inches in diameter. The city is now completely serviced by cast-iron mains; moreover, they are connected so that the system has no "dead ends" to produce annoying taste-and-odor problems. We used pipe supplied by the James B. Clow Company and the Glamorgan Pipe Company.

In addition, we have more control over the water once it gets into the distribution system. We have added more valves, placing them in locations selected to simplify turning off the system if needed; and we have 125 new Traverse City fire hydrants installed in areas designated by the Fire Chief to give better fire protection. Many service connections were renewed with copper, replacing the present corroded and deteriorated galvanized pipe.

We also have more water in storage available for the distribution system. We erected a 500,000-gallon Chicago Bridge and Iron steel standpipe on a high hill in the eastern part of the city. This feeds the city mains through an overhead insulated line supplied by the Ric-wiL Company.

The water level is controlled by a telemetric system of operating the pumps. A transmitter was located at the base of the hill, and a metameter was installed at the fire hall and pump house. This reservoir now keeps the pressure at 65 to 70 pounds per square inch throughout the city and the outlying communities that the city serves. The tank is equipped with Electro-Rustproofing cathodic protection to prevent corrosion.



Another view of the new standpipe, which is connected to the distribution system by an insulated water main located above the ground.

## Pumping Station Details

We also can get more water from the lake to the reservoir and system today. The pumping station now has two new Weinman pumps; one is a 700-gpm (gallons per minute) and the other is a 1,400-gpm unit. The first is operated by a 20-hp motor and the second by a 40-hp motor. The larger pump also is connected to a LeRoi gasoline engine, which is to be used in case of power failure by the electric motor. These motors can be run either automatically or manually, but are being run automatically at the present time.

A 3-hp motor that maintains water pressure in the new automatic chlorinator is interlocked with the two big pumps, but this is always run

manually. A Foxboro lake-level recorder was installed in the pump house, which was equipped with a chart and inking pen.

A new automatic chlorinator was installed to replace two manual-type chlorinators; and a new main-line Sparling meter was installed with controls to regulate the amount of chlorine added to the water.

A Sparling Striptograph was placed in the pump-house wall. This is connected to the meter on the main line. From this, the operator can read the daily use of water. The Striptograph also has an inking chart which shows the pumpage at different times of the day, with 15 hours of the chart visible at all times.

At the pump house, we also have a room to house the new Wallace & Tiernan chlorinator, and a new fluoride feeder is in the process of being installed. An auxiliary floor has been constructed above this room to store materials and to house the hopper through which the fluoride will be fed to the machine.

So, out of this, you can see that today we have more water in storage, to be distributed through a better system, and available through more and better fire hydrants. We certainly hope that no one in Ishpeming suffers the unpleasantness of a bad fire, but if he does, he will find a first-class water system on hand to help him put it out.

# Selecting Playground Equipment for Maximum Exercise Value, Safety, and Economy

By NORMAN R. MILLER
*Vice-President*
*American Playground Device Company*
*Anderson, Ind.*

BEFORE EQUIPPING a new school or community playground, careful study should be made to select apparatus that will provide maximum climbing-play-exercise value, along with greater safety and economy.

A report of the National Conference on Physical Education for Children of Elementary School Age, published by The Athletic Institute, Chicago, has this to say on the subject of equipment selection:

> Children of elementary school age need equipment if they are to attain well-rounded physical and social development. Any community hoping to organize an adequate physical activity program must be willing to supply essential items. Care should be taken in the selection of equipment to choose those pieces which will best fit the age, size, and skill of the boys and girls concerned.

Much money can be wasted by purchasing equipment that is not correctly sized for the age groups. The children do not get the fullest physical and social benefits, and their safety is endangered, when they are invited to play on apparatus of improper sizes and types.

A popular type of playground slide.

### Meetings the Needs of Various Age Groups

Thus, your ideal playground should incorporate a primary play area for children 2 to 6 years old, a junior play area for 6 to 10 years, and a senior play area, 10 years and over.

Apparatus should be sized and designed to intrigue the interest and develop the abilities of these distinct age groups. Be sure to select only strong, ruggedly built, safe equipment of approved design, free from mechanical gadgets or parts that require constant maintenance, attention, or supervision.

In early childhood, the large muscles of the trunk, legs, and arms are more developed than the smaller muscles of the hands and feet. At this stage, boys and girls need, besides running and jumping activities, the climbing exercise that is well supplied by play on the Castle Tower or Castle Walk.

At this period, children are imaginative and imitative. They like to create and explore, and engage in group activities of the "stump the leader" type. Climbing a Castle Tower, for instance, they imagine themselves scaling the walls of an ancient castle and exploring its halls and battlements.

### Variety of Activities Needed For Small Children

Tiny tots have a short attention span, so they must engage in many activities of short duration. These needs can be met by a variety of apparatus, permitting the youngsters to move from one unit to another. In this connection, it might be well to point out that swings, slides, and other units should be installed "in line" or in batteries to conserve ground space for the essential free-play organized game areas and to provide a neater, more orderly, more attractive appearance generally with additional safety for children.

The wise approach to economy in establishing a new play-apparatus area is to select first the basic units. In the order of their importance and popularity, these essential pieces are as follows: swings, slides, Castle Towers or Castle Walks, seesaws, and merry-go-rounds.

With these basic devices installed in sizes for the various age groups—primary, junior, and senior—you have gone a long way toward meeting the play-exercise needs of the children of your school or community. Later on, whenever funds are available, you could make the apparatus area more intriguing and varied by adding giant strides, ocean waves, flying rings, horizontal ladlers, parallel and trapeze bars. The four units last mentioned are ideal for the older children, particularly those who have reached the awkward stage and need exercises that will develop skill and coordination.

EDITORIAL NOTE: The author of this article has volunteered to furnish to readers of THE AMERICAN CITY, on request, detailed descriptions of the various types of playground equipment recommended above.

## *Civic Art Exhibition On View Through May 17*

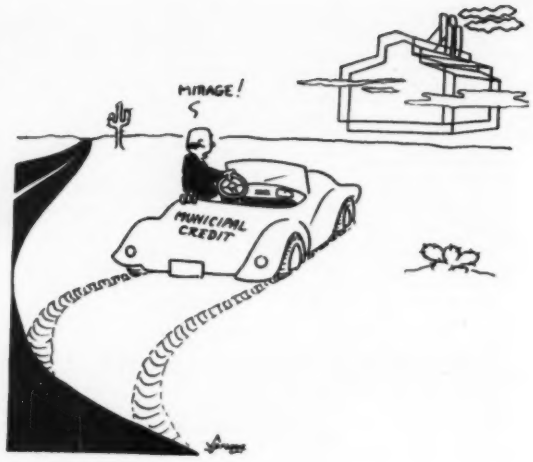
PAINTINGS, SCULPTURE, MAPS, and plans, tracing the history of civic art from the days of ancient Rome to the present century will be on view through May 17 in the Yale University Art Gallery, at New Haven, Conn.

Art treasures on the city planning theme have been drawn to Yale from museums and collections in America and abroad. The two men responsible for the exhibition are Christopher Tunnard, Director of Yale's Graduate City Planning Program, and Lamont Moore, Associate Director of the Gallery.

The show emphasizes the sculpture and the square, two basic elements of a city's plan. Both men see evidences of a trend back toward the Roman monumentality in civic art and away from the modern mechanistic approach to city planning.

# Are Municipal Subsidies For Industrial Location

# Sound?




By DR. JOHN D. GARWOOD
*Associate Professor of Economics*
*Fort Hays Kansas State College*
*Hays, Kans.*

ONE OF THE most perplexing and controversial problems to arise in recent years in the field of municipal finance has been the increasing tendency to build new factories with municipally raised funds and to rent these facilities to industry. As a catalytic agent for "orienting" industry they have had a limited sucess. To many students of municipal affairs they represent an anathema of sound finance.

The State of Mississippi recently sponsored an appeal in a magazine with nation-wide circulation stating, "We'll build it . . . you run it! A plant at *no* initial cost . . . with you as Boss." This BAWI (Balance Agriculture with Industry) plan in Mississippi dates back to the depression days in the 1930's, when unemployment was the Number One headache of local and state governments. Yet the history of municipal endeavor to attract industry goes back a century or more.

### The Background in Brief

During the 1830's, state and local governments sold sizable bond issues for the express purpose of aiding in the financing of banks and canal companies. The catastrophic results are well known. Defaults occurred on a wide scale. The impairment of government credit led some legislatures to adopt constitutional amendments prohibiting the sale of bonds for such purposes.

Substantially the same thing occurred during the period of rail expansion following the Civil War, which again led to public borrowing for private construction. Approximately a billion dollars of state and municipal bonds were defaulted. As before, state legislatures sought refuge in constitutional amendments preventing bond issuance for use of railroad construction. Again the barn door was locked after the horse was stolen.

The cycle of issue and default was repeated again in the prosperous twenties. The boom in real estate caused many municipalities to bond themselves for improvements in real-estate development. By the early thirties estimates indicated that more than two billion dollars of state and municipal bonds had been defaulted.

It will be seen that the common denominator of these municipal financing schemes has been periods of intensified industrial activity and the desire of civic-minded bodies to aid the birth of new industrial operations in their communities. Although the BAWI of Mississippi first saw the light of day in 1936, its success in orienting industry has been chiefly in the last 10 years. The increased industrial activity in the nation following World War II has not been uniform from state to state.

It is small wonder that industrial promotion bodies became concerned lest their economic potentials be bypassed by expanding industries. This has been especially true in the South. The states of Alabama, Kentucky, and Tennessee followed in the footsteps of Mississippi.

### State Law Provisions

The Mississippi law permits communities to issue general-obligation bonds which are backed by the taxing power of the municipality involved. In Alabama, Kentucky, and Tennessee, however, the municipalities are authorized to issue only the so-called revenue bonds, which are backed solely by the earning power of the company involved, i.e., the bonds are issued as municipal bonds, but their interest payments and their eventual redemption is dependent wholly upon the revenue paid by the company using the constructed facilities. These facilities in the past have consisted of the physical plant and in some cases the plant and its equipment.

In the North, retaliatory measures in kind have been forthcoming. In Illinois, for example, state legislation passed on August 2, 1951, near the close of the legislative session, makes it possible for municipalities to issue revenue bonds "to construct, purchase, improve, or expand industrial buildings and to lease or rent them to private firms." This covers buildings up to 10 miles from territorial boundaries of the municipality involved.

In Pennsylvania the broad law establishing local authorities permits cities in the state to issue bonds for building factories. The city of Hazleton has already issued bonds for this purpose.

A few localities in the State of Oklahoma have taken advantage of what seems to be a subterfuge to achieve the same ends. Several municipalities have issued revenue bonds for the construction of municipal buildings and then have leased all or part of the buildings to industry.

The Massachusetts Legislature in its 1952 session pondered a bill that would allow the state to issue bonds whose proceeds would be used for plant construction for private corporations. Rhode Island legislatures also considered a comparable bill.

Other state-government bodies and industrial-development committees have initiated investigations as to the virtues of such courses of action. The situation is not unlike that which prevailed in the 1830's, the 1880's and the 1920's, when states and municipalities sought to further particular projects by governmental financing.

### The Present Status

It is estimated that from 1938 to 1951, over 50 Mississippi localities have utilized the law permitting the issuance of general-obligation bonds and have issued such securities totaling about $7,000,000. The companies aided under the plan include Real Silk Hosiery Mills, Johns-Manville, and the Armstrong Tire & Rubber Company.

At the present time, a $4,750,000

broadloom carpet mill is being erected in Greenville, Miss., for one of the three largest rug makers in the nation. The plant is owned by the town.

The towns of Meridian and Aberdeen, Miss., both intend to construct plants for Textron, Inc., of Providence, R. I., but are having some trouble with the selling of the bond issues voted by the electorate.

Elizabethton, Tenn., also hopes to erect a plant costing $6,000,000 for Textron, but thus far has not marketed its bonds. In addition, the citizens of this community have voted to issue securities amounting to $20,000,000 to build a paper mill for the Monadnock Paper Mills, Inc., of Bennington, N. H. Thus far the bonds have had no takers.

In Hamilton, Ala., Munsingwear, Inc., of Minneapolis, has secured a municipally erected plant valued at approximately $350,000. A number of other southern localities have bonded themselves to provide facilities for manufacturing operations. During 1951 municipalities of Mississippi voted issues of more than $3,000,000 for helping a variety of firms, including a milk-processing and a box-making company. But at the beginning of 1952 these bonds had not been sold. As a consequence, the new installations have not been erected.

One estimate has been made that approximately $63,000,000 in bonds have been approved by voters in the states of Mississippi, Tennessee, and Kentucky in the first half of 1952. Only about $8,000,000 of these bonds have been sold.

Security dealers have become more reluctant to accept municipal bonds for distribution where the proceeds are to be used for construction of plants for private industries. Moody's Investors Service warned its readers that they believe that "these bonds will constitute a type of issue which investors will do well to avoid as a class."

One result of the difficulties encountered by municipalities engaged in bonding themselves for plant construction is the statement by Governor Hugh White of Mississippi that if investment bankers do not service the municipality bonds of his state he will attempt to get the state to purchase the municipal bonds of the various communities. Presumably, the state would issue its own bonds and turn the proceeds therefrom over to its cities and towns in return for their bonds. The Governor evidently assumes that state bonds would find a ready market regardless of the purpose for which the funds were used.

### The Pros and Cons

The advantages for this type of municipal activity, it should be noted, accrue only to the participants in the program, i.e., the residents of the state or municipality concerned and the recipient of the buildings and equipment, namely the migrant company. These advantages are as follows:

1. Greater payrolls in the community follow industrialization.

2. The added income in the area is greater than the absolute amount of the payroll. There will be demand for more clothing, food, raw materials, transportation, etc., which result in increased activity for almost every branch of the community's economy.

3. It balances agriculture with industry.

4. It may lead to investment by a company which heretofore had not found it possible to initiate operations. If ordinarily a company must pay 5% for borrowed funds in the investment market and a municipality can borrow for 2½% or 3%, then it is conceivable that a firm will commence operations where it can secure capital at such lower rates of interest.

5. It permits a company to retain its funds as working capital and thus expand its sales and increase its net earnings.

6. It enables areas which are backward industrially to "break the ice" and secure industry. Such promotion schemes create interest if nothing else and bring the rea to the attention of potential entrepreneurs.

So much for the virtues of such schemes. The disadvantages of such proposals affect the participants in the programs, the states and the municipalities, and the rest of the country. The disadvantages are as follows:

1. It leads to retaliatory measures by other states and communities. Such steps will negate any advantage the originators ever had.

2. It may lead to higher costs in municipal financing. At the present time the interest from municipal bonds is not taxed under the federal income tax, but if Congress again moves to bring the interest of municipal bonds under the income tax, municipalities will then find that they must pay a higher rate of interest on their borrowed money.

3. In time of economic stringency many municipalities may be hard pressed to meet the obligations thus acquired. In periods of prosperity and high tax receipts the drain of interest payment may be little felt, but the burden of heavy fixed charges with low tax receipts creates civic problems of great proportions.

4. Historically the record is against such financing. Where municipalities have engaged in this type of activity before, the results have been of a chaotic nature.

5. The population of the community may be increased by the influx of new workers. Thus, it puts a heavy burden on the other members of the community. New expenditures may be required for schools, police and fire protection, new sewers, and other municipal responsibilities.

6. It causes bad feeling among other members of the business community. Established firms may wonder why they have not been selected as a candidate for the municipality's "love and affection." Why should one member of the economy be favored over and even at the expense of another?

7. In many instances it is possible that the firm concerned would have come to the state anyway. Most manufacturing operations are oriented primarily to their markets and raw materials. Unless these major factors of location were favorable in the state, no amount of artificial inducement could bring the firm in.

8. A community is apt to attract many fly-by-night firms which are not able to stand on their own legs. Too many communities in the past have been victimized by marginal producers.

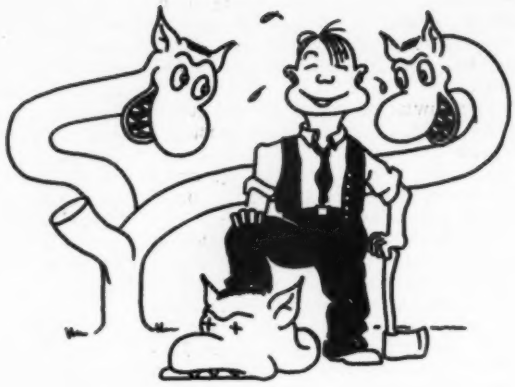
9. Once a community has learned to depend upon a firm for a payroll, an unscrupulous owner may demand many other privileges and rights as payment for remaining in the area. A threat of a move may bring lower taxes, subsidies, and other unjustifiable concessions.

10. It weakens municipal credit. Under the "revenue" plans the municipal name and credit is used to secure funds for which the only backing is the revenue of the concern involved. Thus, the status of municipal credit is made dependent upon the vagaries of a particular business. If the bonds were issued in the company's name, they would be regulated by the Securities and Exchange Commission and thus subject to certain standards of finance. Municipal bonds, on the other hand, are subject only to the judgment of the municipality involved and its investment house.

11. It brings public funds into competition with those of private entrepreneurs. With state or municipal funds so directed, the end product could well be state regulation of industrial activity on a wide scale.

*For a Planned Attack on*

# Municipal Budget Problems



By ALBERT PLEYDELL
*Management Consultant*
*New York, N. Y.*

CAUGHT BETWEEN rising costs and taxpayer resistance to higher levies, many local officials are facing a period of acute financial difficulty. Harassed by demands from employees for higher salaries in all departments, or from citizens for more manpower in the safety services, they are hesitant to lay the last straw upon the back of that allegedly patient camel—the taxpayer.

Yet something has to be done. If more money is not forthcoming, the only thing to do is to cut expenses—but where?

## If the Situation Is Critical

The answer to this question depends to a large extent upon how carefully the problem has been considered and how quickly a decision must be made. If the situation is critical, the only way out is to swing the axe. This method gets results quickly. Expenses are cut; money is saved. Unfortunately, only a temporary respite is gained. The act of arbitrarily chopping intensifies the very pressures it is supposed to cure. A budget attacked with an axe becomes a hydraheaded monster, eventually growing two heads for each one that was lopped off.

However, such a course of action may be unavoidable. Certainly the longer a planned approach to economies is postponed, the more likely it is that only ruthless trimming can produce results in time to prevent a financial crisis.

If your community has actually reached the elastic limit of its finances, then by all means sharpen the axe and swing it hard. It will help you gain time to do an intelligent job. But don't let that respite slip away without positive action. If you do, the next time the pressures build up they will be much worse than now.

If the situation is not quite so critical—although the storm signals are already flying—then no drastic action is needed immediately. There is time for a careful, planned approach to the problem.

Let's take a long, hard look at the budget. First, there's the debt service. There's not much that can be done about that, except to remember that today's debt service is yesterday's capital program, and tomorrow's debt service is today's ditto.

Next, there are the fixed costs, such as utilities, refuse contracts, etc., not too hopeful as a source of economies. But "many mickles make a muckle," so these items shouldn't be brushed aside without some consideration. Maybe there's a little "fat" here that can be removed.

## Effecting Savings Through Purchasing Techniques

Then we come to the item of supplies and equipment. This looks a little more promising. The chances are that, by the use of the right purchasing techniques, you may effect savings of as much as 10% over present costs. What are some of these techniques? There are many, but a few should serve to illustrate the point:

*Get plenty of competition for purchases.* Few public agencies are required *by law* to seek bids for open-market purchases. Yet the best prices usually result from wide competition; the worst, from monopolistic practices.

*Consolidate requisitions.* Requisitions for the same commodity, coming in from different agencies, should be consolidated into a single order, to take advantage of lower prices for larger quantities.

*Standardize requirements.* Analysis of requisitions from the different agencies for certain items of supply or equipment often reveals that, in spite of the fact that they all are using given items for identical purposes, there is great diversity in the specific grades or qualities they request.

The most suitable grade or quality of the items *for the purpose* should be determined and established as a standard for all the agencies. The economies resulting from standardization are twofold: (1) it eliminates the purchase of luxury grades or qualities for work-a-day purposes, and (2) purchases of large quantities of standardized items can be made at better prices than smaller purchases of a variety of grades.

## $1,000,000 of Assessables To Carry a Dozen Clerks

And now to a consideration of the payroll. A significant fact not generally appreciated is that, on the average, it takes about $1,000,000 of assessables to carry a dozen clerks. Viewed in that light, surplus clerks are a luxury that few municipalities can justify in this era of rising costs. This statement is no attack on the standing of the white-collar worker—quite the opposite. Modern business has discovered that increased productivity per worker results in increased earnings—not only in the plant or factory, but also in the office. To state the equation in terms of municipal office employees, if the same amount of work can be done with less staff, then it is possible to increase salaries for the smaller staff and still show payroll economies.

How to get along with fewer clerical workers? The first thought that comes to mind is to increase mechanization of the office. Often the installation of new office machines, or the coordination of the work of several departments to make better use of existing equipment, will substantially reduce the clerical effort needed.

## To Avoid Pitfalls of Mechanization

There are several pitfalls to be avoided, however, and the situation should be carefully explored before any action is taken. For example, it is not unknown for a machine in one location to cause excessive clerical work elsewhere, even to the extent that the advantages of the machine are lost. Similarly, if machine work and manual work are not properly balanced, there is a strong likelihood

that bottlenecks will develop. The most important consideration of all, of course, is that there must be a large enough volume of work to justify the use of new equipment at all.

What about the systems and procedures used in offices, shops and other services? Are all the procedures really necessary? Could any be eliminated? Combined? Are they performed in the right sequence, or is there wasteful backtracking? Are the various forms used throughout the office so designed as to conserve clerical effort? The answers to these and similar questions will demonstrate the possibility of substantial savings in manpower.

The most rewarding technique, however, is likely to be a critical review of the policies that the various systems and procedures are designed to serve. The most efficient operation is just so much wasted effort when it is carried on to satisfy some obsolete provision of law or ordinance.

These approaches to the subject of budget economies can't be put into effect overnight. They involve careful study and persistent effort. But for the long pull, they are the best ways of achieving lasting results. More important, perhaps, such a program of economies is an effective rejoinder to those critics who are wont to proclaim that if they were to run their business "that way," they'd be in the breadline. At the same time, it assures the taxpayer organizations and other civic groups that the tax dollar is being spent to the best advantage of the public.

# Glendive, Mont., Aims for "Double-Barreled" Prosperity

THE CITY OF GLENDIVE in eastern Montana now proudly calls itself the Oil Capital of the state. It is in the heart of the Glendive Williston Basin, and production of some 15,000 barrels per day is already assured, with new wells coming in continuously.

The other side of the story is that the city is bursting out of its seams. A thousand people live in trailers and another thousand in the most temporary housing imaginable. Glendive is in a tight spot, literally speaking, as the accompanying aerial photo shows. On one side is the Yellowstone River—on the other side the "Hungry Joe" mountain, and there is not an inch to spare between them. With a great industrial expansion, with a need for office and apartment buildings, and a number of homes, the city plan has had to span the river and design a "new town" on the other side which will accommodate half our future population.

A modern town plan has been laid out here in such a way that undeveloped blocks can be retained for garden tracts and agricultural use. Since this land is irrigated, canals have to be preserved in the street pattern. This area is now unincorporated, but the County Commission is cooperating fully with the city in developing the over-all plan. A major industrial district, shopping centers, schools, and parks are included in this suburb.

## All Angles Covered

North of the present city there will be a residential area of a single-family character. To accomplish this, a privately owned golf course had to be moved farther out along Glendive Creek, making the present course available for residential development. The airport adjoins this area and will remain because of its easy connection with the business district. One interesting point which came up in planning discussions was that the airport should be handy for doctors to fly out to their patients or bring them in by plane to the hospital. Private flying is an important feature here and this airport may be retained for that purpose even when Glendive obtains its much-needed commercial airport.

There will be other residential areas, parks, and playgrounds. City growth will eventually require a major bypass road and an expensive bridge.

The plan also outlines the major development for water lines and sewer lines, location of a new courthouse and civic center, and provisions for schools and recreation facilities.

Knowing the ups and downs of oil towns, the City Planning Commission is using the present boom period to make economic studies of the trade territory a part of the city plan. It is a well-known fact in the Mountain Region that cities which are located in the center of large irrigated areas are exceptionally stable. Fortunately, studies seem to indicate that some 150,000 acres of land can be irrigated within easy reach of the city, as there is plenty of water in the Yellowstone River, and the soil is deep and fertile. With assets of both oil and water, Glendive will have double-barreled prosperity.

S. R. De Boer
*City Planning Consultant*
*Denver, Colo.*

**The oil-boom city of Glendive, Mont., showing how natural barriers have created growth and development problems.**

# *A New Idea* In Incinerator Stoking

**Baltimore, Md., rebuilds a mutual-assist type of plant, equipping it with an inclined grate and specially designed, hydraulically powered stoking bars, and is able to increase the incinerator capacity by 50%, lower labor requirements, and reduce maintenance costs**

By WILLIAM P. FANNON
*Chief, Bureau of Sanitation*
*Baltimore, Md.*

BALTIMORE has just completed a full-scale experiment in refuse incineration that has been so successful that we plan to adopt the principles as a permanent part of our refuse-disposal program.

This departure from the more commonly accepted types of incinerators can be found in our plant No. 3 at Reed Bird Avenue in our city. This incinerator has been in operation for 20 years. It was a manually stoked incinerator of the rectangular, multi-cell, mutual-assistance type. This type of furnace makes use of the fire and hot gases to the utmost in evaporating the moisture from wet refuse. The furnace burned the refuse excellently, but like any manually stoked furnace, the work was hard and at times objectionable.

### Original Design

The furnaces originally were designed to handle 600 tons of refuse per 24 hours, the refuse being 65% garbage and 35% other rubbish by weight. This is a pit-and-crane type of plant. The refuse pit measures 16 feet by 200 feet in plan and is 16 feet deep, giving it a storage capacity of 1,900 cubic yards. To remove the refuse from this rather long pit, we use P&H traveling cranes, each with a lifting capacity of 3 tons. Each crane is equipped with a 1½-yard clamshell bucket. The cranes deliver the refuse to any of 16 charging hoppers. Similarly, there are 16 manually operated charging gates which are located fairly close to the bridge wall following the standard design of the Pittsburgh-Des Moines incinerator.

The plant has four furnaces with four cells each. Each cell has a louvre-type air-control damper from the forced-draft air duct. A cast-iron tubular preheater provides additional heat as required for drying and burning on those days when the moisture content is much higher than normal. Each cell has a dumping grate adjacent to the front wall where the residue of ash and noncombustibles is dropped into an ash hopper equipped with segmental ash gates. The ash tunnel is designed so that a truck can enter and receive the ash directly from the ash hoppers.

Each furnace has a combustion chamber immediately behind it, 5 feet deep, 29 feet wide, and 19 feet high. The incinerator has two stacks, and each serves two furnaces. These stacks have a 9-foot diameter at the top and reach a height of 142 feet above the dumping grate of the furnaces.

### Change in Collections Affects Incinerator

In 1948 the city changed its policy of refuse collection. It now collects both noncombustibles and combustibles together. Having to incinerate this mixture of glass, tin cans, yard sweepings and other miscellaneous refuse along with the garbage naturally created a problem because it was noticed that the percentage of garbage had decreased and the percentage of rubbish had increased to such an extent that the mixed refuse averaged approximately 30% garbage and 70% rubbish, with a moisture content of approximately 40%. Along with this increase in rubbish materials and decrease in garbage, we were also aware of the fact that the load on No. 3 incinerator was increasing due to expansion in the building program in Baltimore.

### Mechanical Stoker Experiment

Therefore one can understand our interest in a proposal that we experiment with this mechanical stoking device that promised the possibility of greatly accelerating the burning capacity of our furnaces.

At very low cost, the city was able to enter into a joint venture with Pittsburgh-Des Moines, maker of the incinerator, and the Flynn and Emrich Company, stoker manufacturer, to install the "F&E" incinerator stoker in one of the furnaces on a trial basis.

In this experimental installation, the raw refuse is charged at the bridgewall end of the grates. This is the customary fashion for mutual-assist furnaces made by this company. However, the grates have been set at an angle of about 15½° from the horizontal with the portion of the grate at the back of the furnace higher than the forward end. Each individual grate section is hinged at the lower side and has a curved shield at the upper side so that it can be rotated through an angle of about 60° without getting burning refuse clogged in the rotated portion.

The grate sections are moved alternately by hydraulically powered lever bars. Every other grate section will be raised while the remainder stay in place. This alternate moving provides uniform and regular agitation required to complete the drying process and advance the material down the grates as rapid burning takes place and new surface is constantly exposed for combustion.

### Agitation Helps Burning

This constant agitation, in addition to aiding the burning operation, has a tendency to prevent clinker formation. Actually our tests showed that clinkers were almost nonexistent. Those few small clinkers which did form were not on the wall or the grates but in the moving body of refuse that worked down to the dumping section and did not interfere with normal operation.

The agitation allows the operator to advance the burning material on each individual section according to its burning characteristics, thus assuring complete reduction. The nonuniform consistency of the raw refuse demands this flexibility to obtain maximum efficiency and deliver a completely sanitary ash.

The residue deposited upon the dumping section has been burned down thoroughly; and by means of the power cylinder provided, the grates can be dropped, allowing the ash and noncombustibles to fall into the ashpit.

The furnace dimensions are 29 feet in width by 8½ feet in depth, giving us a horizontally projected grate area of approximately 246½ square feet. Based on the test figures of 189.6 tons of refuse per 24 hours, this results in a combustion rate of

approximately 64.2 pounds per square foot per hour. These figures are the result of a 72-hour test conducted by our department at the end of a 90-day trial period.

### Benefits Gained

From this test, we have arrived at the following conclusions: First, we have noted that the grate arrangement has given us an increase in furnace capacity. This has been in the order of 50% over the actual capacity that the old furnaces were able to operate at, and 26½% over the original rated capacity of the furnaces.

The second advantage is the curtailment of stack nuisance. By being able to maintain constant furnace temperatures, even while cleaning the fires, it is possible to reduce to the point of elimination odors and smoke, fly ash, mist, and other visible discharges from the stack. The critical temperature in the elimination of these items is approximately 1,300°F. We were able to keep temperatures above this point easily. The elimination of these nuisances means that we should be able to locate new plants closer to built-up areas without danger of objection. This will shorten our hauls and reduce collection costs.

### Labor Requirements Reduced

The third advantage is a marked reduction in labor. We no longer have to use heavy hoes and rakes to move the material and break it up. This inadequate and uneven action on the hand-fired furnace of the breaking and stirring of the fire often resulted in clinkers which proved a physical trial when cleaning the fires. Normally two men are needed to operate each furnace, and two more men are needed to assist with the cleaning. With the use of a power-operated grate, it is unnecessary to use the additional men and the labor of the two operators is reduced to a bare minimum.

A fourth advantage is the reduction in maintenance that this type of stoker provides. By being able to maintain relatively uniform furnace temperatures, the effects of thermal shock are reduced. The elimination of clinker which adheres to the refractory wall further reduced the refractory maintenance. The elimination of these two items resulted in less "off the line" time for repairs. Instead of days, our crews can do the same work in a matter of hours.

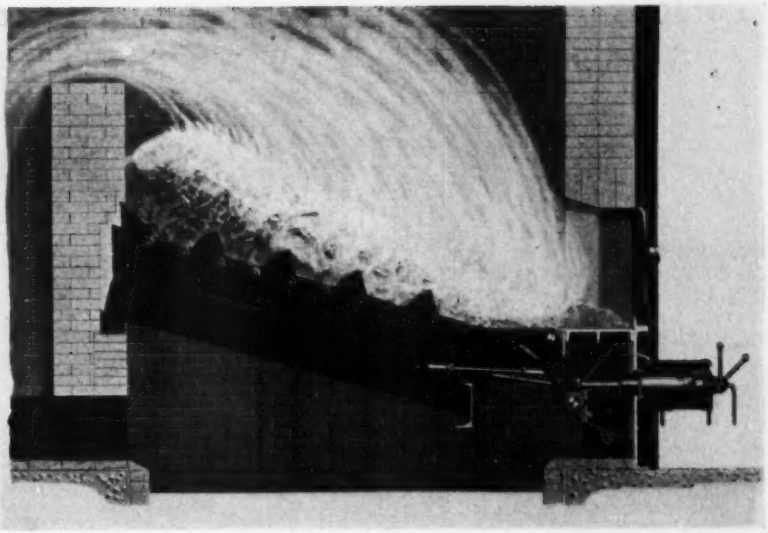
### No Furnace Changes Needed

No changes to the existing general design and dimensions of the furnace expansion chamber and stack were involved. By virtue of the slope of the grates, the available furnace volume was reduced only slightly.

Since the principal increase in capacity was caused by the elimination of the time required for burning down and cleaning, the maximum heat released remained relatively the same. As can be appreciated, any increase in furnace temperature beyond the normal design might have resulted in refractory damage and maintenance. This, of course, restricted the possible maximum burning which could be obtained.

This trial installation was so successful that the city not only immediately issued an order for equipment to supply the remaining three furnaces at the Reed Bird Avenue plant, but also has included them in the specifications for the new incinerator that the city plans to build.

The work convinced us also that this type of automatic stoker can provide extra capacity to almost any rectangular furnace that now is hand-stoked.



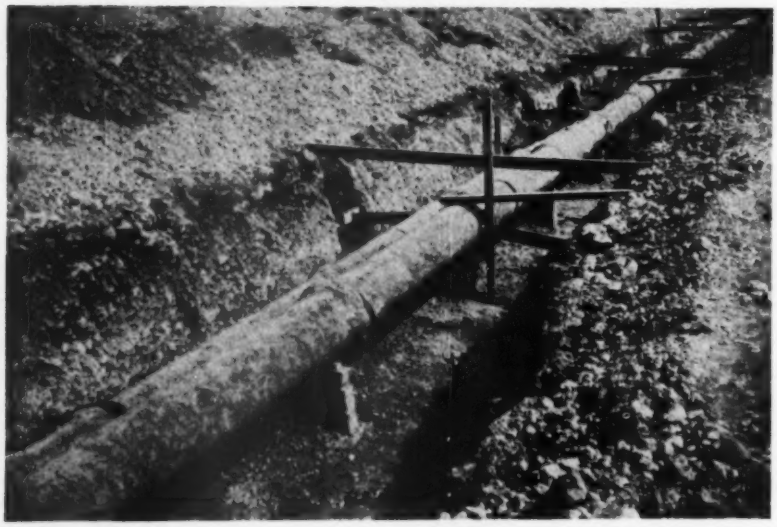
**The stoking mechanism that stepped up the efficiency of the Baltimore incinerator.**

**The experiments in refuse incineration took place at the Baltimore (Md.) Reed Bird Avenue incinerator, shown here.**

## To Raise or Lower a Water Main in Use . . .

# *Take It Easy*

**Water mains can be raised or lowered without taking them out of service — the experience in two cities shows how**



**In Brookline, Mass., two mains go down in easy stages. Note particularly the extensive use of lateral supports.**

**Brookline water crews install a new main and raise the grade of an old one with the help of the chain hoist at the right.**

MANY TIMES TODAY, cities find themselves having to raise or lower water mains already installed and in use. Sometimes street improvements force changes in grades, unanticipated sewers have to be laid, or other events take place that force a city to re-align its water mains. This doesn't have to mean a major operation, with water mains out of service and water users inconvenienced. If a crew uses care, these lines can be shifted to their new grades without troubling any but a few local water users.

Kenneth W. Robie, Superintendent of Water at Brookline, Mass., faced such a situation a few years ago. The town succeeded in lowering a 14-inch main 1,500 feet long, and also a 20-inch main, each approximately 5 feet. In another case, a 14-inch line of 18 inches was raised.

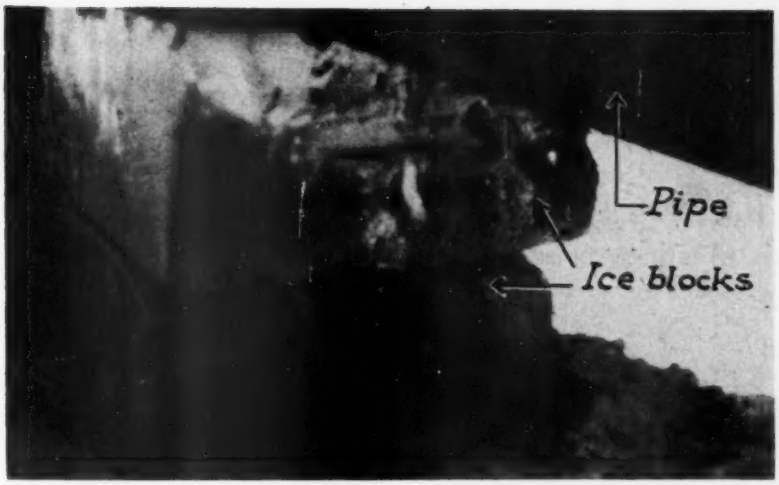
The lines that were lowered formerly rested on wood-pile foundations and went through a cedar swamp. The 14-inch section had been laid in 1874 and the 20-inch portion in 1893, so both had seen plenty of service. During the intervening years the wood foundation had rotted away and the line had settled badly.

### Wood Blocks Used

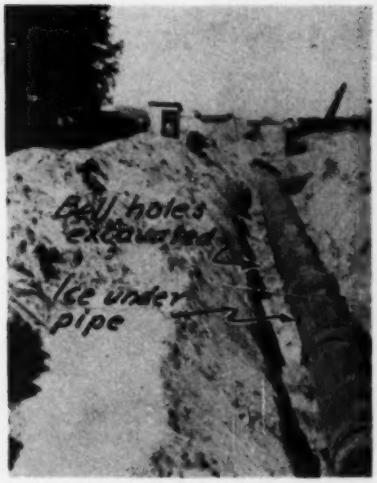
To lower the main to its new position, the first step was to construct concrete foundations under the alternate bells of the pipes, and finish them off at a grade approximately 5 feet below the original grade of the pipe.

The next step was to uncover alternate bells of the pipe and support them by 2-by-6-inch fir blocking resting on the new concrete foundation. After they were placed firmly, the workmen then uncovered the balance of the line. At intervals they supplied lateral bracing to prevent the possibility of the pipe's moving off the blocking.

Then a second set of blocks was placed in back of the pipe bells. The top of this set was 3 inches below the bottom of the pipe. Then the crew carefully knocked away the first set of blocking so that the second set




Here is a close-up of the ice blocks supporting the pipe in Augusta, Ga.




The main goes down as ice melts.

supported the pipe. Thus by alternately knocking out the supporting blocks, they lowered the entire line in two hours and ten minutes. The 20-inch main went down in only one hour and 20 minutes, thanks to the practice the men had on the smaller line.

### Chain Hoist Raises Line

On another occasion, the Brookline Water Department had to raise an 8-inch line 18 inches because of a sewer that was laid through the area. The crew uncovered the line, then used a 2-ton chain hoist to raise the line at the center about 3 inches. The line was then blocked with 2-by-6-inch fir timbers and the lifting process was continued each way from the center, tapering off to nothing at each end. The process was then repeated, using larger lifts.

Before undertaking this work, the crew checked all gate valves to see that they would operate easily, and left gate wrenches at each valve. They also disconnected all goosenecks to the service lines and plugged the ends with waste. As soon as the work was completed, the service lines were reconnected. As they raised a main, they also raised a hydrant and a branch, including the emergency gate valve. The actual work took four hours and required the services of a foreman and eight men. No leaks or breaks occurred and several sweating joints were reset. The earth was backfilled by means of pneumatically powered tamping equipment so that the pipe would stay firmly in place after the supporting fir blocks had rotted away.

Superintendent Robie reports that he has raised 10- and 12-inch mains in the same manner by using two sets of chain hoists. Occasionally he has used wedges where the work conditions would not allow the use of the hoists.

Not long ago, the town lowered 550 feet of 6-inch main 3 feet at the middle of the run, tapering off to zero by the methods previously described. The work required about six hours. About five of the lead joints had to be recaulked.

A somewhat more novel way of lowering a main took place in Augusta, Ga., some years ago. City Engineer John Twiggs first started using this method in 1918. In one project, a line 300 feet long was lowered 26 inches without creating any leaks.

Mr. Twiggs excavated all but a 3-foot section under each bell, then put a 200-pound piece of ice under the middle of each section of pipe and then carefully removed the remaining earth. The sun then did the rest of the work for him, melting the ice and bringing the pipe gradually to grade. The work started at 9 a.m. and was finished at 8 p.m.

## Mapping Program in Montgomery County, Pa.

ONE of the major goals of the Montgomery County Planning Commission is the development of accurate mapping for the entire county. When the Commission was organized in 1950, many areas of the county were either completely without maps or the information available was inaccurate or unusable.

A series of three maps is being prepared for each of the 38 townships in Montgomery County. These maps include topography, street, and building-location maps. Fourteen townships already have been mapped, but the demand for these maps far exceeds those completed. Because of this, a priority system has been established which enables areas adjacent to or immediately affected by major highway construction to obtain their maps first. When the individual township maps are finished, they will be grouped together into a series of five regional maps covering the entire county at a scale of 1 inch equals 2,000 feet.

The maps are based on information from the United States Geological Service and the Production and Marketing Administration aerial photographs. The topography maps are made from photographic enlargements (1 inch equals 800 feet) of the maps of the United States Geological Service. Draftsmen correct these prints and redraw faint topography. The enlargement is mounted and a photographic negative is made, from which black and white paper prints are obtained.

The new topography maps are used for field checks to determine existing and new streets, etc. The street plans of new developments which are filed with the Commission are added. The maps are checked stereoscopically with the aerial photographs of the townships and are then matched with surrounding townships for street alignment. An ink tracing is made and titled showing all information except topography. To make the building location maps, a linen reproduction is made of the street map; and from the buildings shown on the U. S. G. S. maps, additional information gained by field checking, subdivision records, and aerial photographs, the building locations are added to the street maps. Wooded areas are also shown.

Prints of these maps are presented to local officials and are available to the public at a nominal fee.

LeRoy L. Little, *Director*
*Montgomery County Planning Commission, Norristown, Pa.*

Beloit, Wis.

# Streets Get a Lot of Attention

**Street repair, street cleaning, snow removal, and the cleaning of sewers under the streets are put on fast-moving efficient basis**

By A. D. TELFER
*City Manager*
*Beloit, Wis.*

GROWING CITIES always seem to be doing something to their streets. Sometimes they are building new ones; sometimes they are resurfacing the old ones. They may be building new water and sewer lines under them or taking snow and dirt off the top of them. In any case these arteries that make it possible for a city to live and prosper certainly never are forgotten in any municipality that is on the way forward and upward.

That is the category that Beloit is in. It was busy growing last year. It annexed 225 acres of new land and issued 565 building permits, or more than the number issued in any year since 1925. Its population has shown a solid, steady increase of 5,000 during the past 10 years, reaching its current figure of 30,000, by its own efforts, rather than by the artificial stimulus of some great outside industry or unusual governmental project.

Last year the city repaired and resurfaced more than three miles of streets. This included more than 9,000 feet of new blacktop, nearly

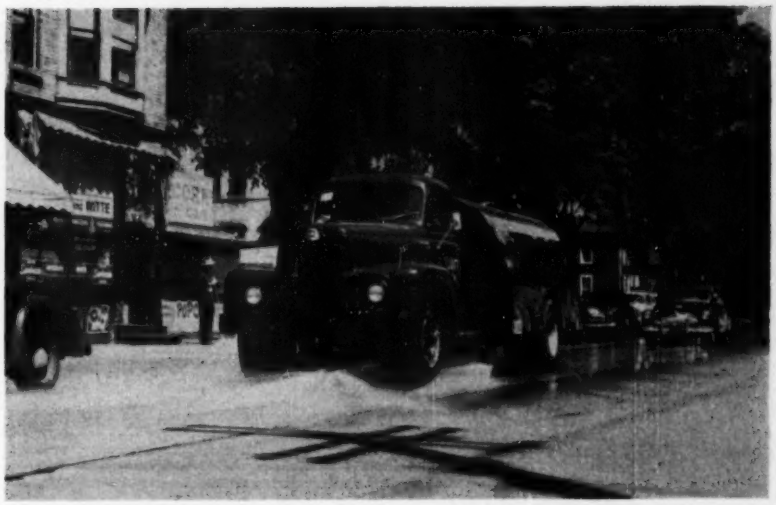
**Beloit's top street-improvement project was this widening job done last year. A Le Tourneau scraper and ripper is scarifying the old street.**

**Here is a picture of the same street two months later. It is shown getting its very first application of hot-mix asphalt surfacing.**

**To avoid the danger of skidding automobiles, the city sends out this big Highway Equipment sand spreader to put icy intersections into nonskid shape.**

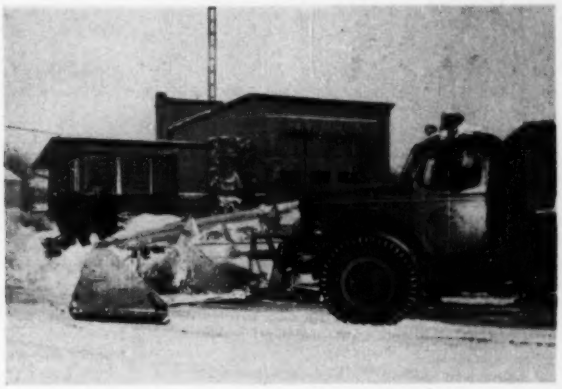
**If trouble occurs in the sewers under the streets, the City of Beloit employs this Flexible Sewer Rod unit to straighten it out quickly.**

A street in an outskirt area is sewered as part of the public-works program.



When streets are in need of a cleaning, the city uses this Rosco flusher to wash the debris to the gutter.

Then one of its two large-model Elgin street sweepers goes to work picking up the dirt from the gutter.



In winter, the snow plows clear the streets and keep them operating. This plow is a Wausau mould-board type.

2,500 feet of concrete paving, another 5,000 feet of asphaltic resurfacing, and about 7,000 feet of new curb-and-gutter. Storm sewers and sanitary sewers also had to be built.

To help keep the work going smoothly, the city acquired a 2,100-gallon street flusher, two new snow plows, three pick-up trucks, an automatic street sweeper, a new portable blacktop mixer, a new street sander, and a time-saving sewer cleaner. These will keep our streets and the services under the streets functioning in reliable shape so that Beloit can continue its progress forward.

### Depreciation Plan

In order to avoid peak expenditures in our annual budget, we are working on a plan of depreciation on all our street equipment. We take into consideration the life of the equipment and charge off each year a specified amount that goes to a separate fund so that money will be available when equipment needs replacing.

## Safety Contest for Police Departments

DURING the twelve months beginning July 1, 1953, a nationwide safety contest for police departments, sponsored by the International Association of Chiefs of Police, will be conducted by the National Safety Council.

As announced by Chief Cyrille Leblanc, of Gardner, Mass., president of IACP, and Franklin M. Kreml, director of the IACP Traffic Division and vice-president for traffic and transportation of NSC, police fleets will compete in accordance with the rules of the National Fleet Safety Council which is now in its 22nd year and includes more than 1,300 truck, bus, and taxicab fleets. Winners in each of the police divisions will receive the National Fleet Safety Contest plaque bearing the names of both organizations sponsoring the nationwide contest.

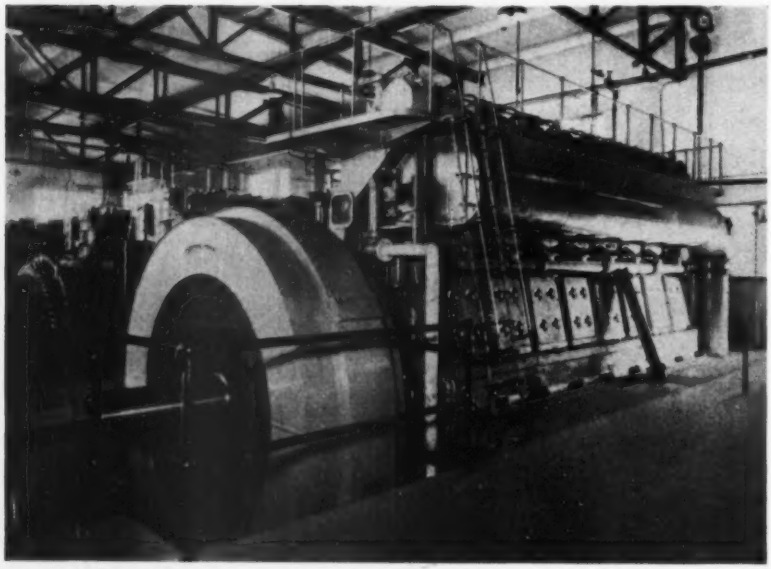
Contestants will compete without charge and, under the rules, will report the number of reportable accidents sustained and vehicle miles traveled during each month. Each contestant will receive a monthly bulletin showing his cumulative accident frequency and his standing in the contest. Police departments will be mentioned in the bulletin by code number only.

Mr. Kreml described the contest as a proven tool of accident prevention and an important new service to police administrators who are interested in cutting down accidents involving police equipment.

Police administrators may obtain contest rules, registration forms, and report forms by writing the Motor Transportation Division, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

# Natural Gas Makes Electric Costs Drop

*New 2,800-hp dual-fuel engine at Falls City, Nebr., generates power at a fuel cost of 3.15 mills per kwhr*



**The 2,800-hp dual-fuel engine shown here is the newest and the largest of six Fairbanks-Morse engines in the municipal power plant at Falls City, Nebr. The new unit is credited with cutting fuel costs 63%.**

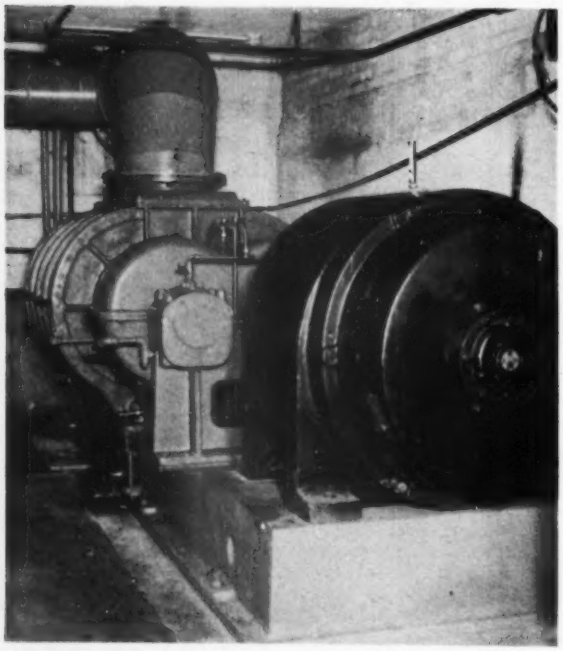
A NEW 2,800-hp dual-fuel engine is producing power in the Falls City municipal electric plant at a total fuel cost of just 3.15 mills per kwhr (kilowatt-hour). This economy is being achieved with 20-cent gas and 11-cent fuel oil and represents a saving of 63% compared with previous diesel-fuel costs.

The big engine is a Model 31AD18 Fairbanks-Morse, with eight cylinders of 18-inch bore and 27-inch stroke developing rated horsepower at 277 rpm. This two-cycle dual-fuel unit drives a 1,984-kw Fairbanks-Morse alternator with 25-kw V-belted exciter.

### Diesel Growth

This plant has relied on diesel power since 1926 when it switched a 720-hp Model 33 Style M Fairbanks-Morse diesel. This unit, a quarter-century later, still operates every day, teaming up with the new engine to carry the load.

In 1928, an 840-hp engine went into service. Two years later, a 1,000-hp unit was installed. In 1936, the plant



**Scavenging air for the big two-cycle dual-fuel engine is supplied by a Roots-Connersville blower driven by a 200-hp Fairbanks-Morse motor.**

**Some lube oil is bypassed continuously from the pressure system of the big engine through the Hilco fuller's earth filter, which is shown above.**

received a 1,400-hp engine, and in 1942, a 1,600-hp was added. All of these were two-cycle, pump-scavenging, mechanical-injection Fairbanks-Morse diesels.

### Natural Gas Use Begun

Finally, in December 1950, the 2,800-hp engine went into full service as a diesel and generated more than 1,000,000 kwhrs in the next three months at an average of 14.07 kwhrs per gallon of fuel. Then, in March 1951, the unit was switched to natural gas and began to slash fuel costs in earnest. In the first half year the dual-fuel engine produced a kwhr at the following cost:

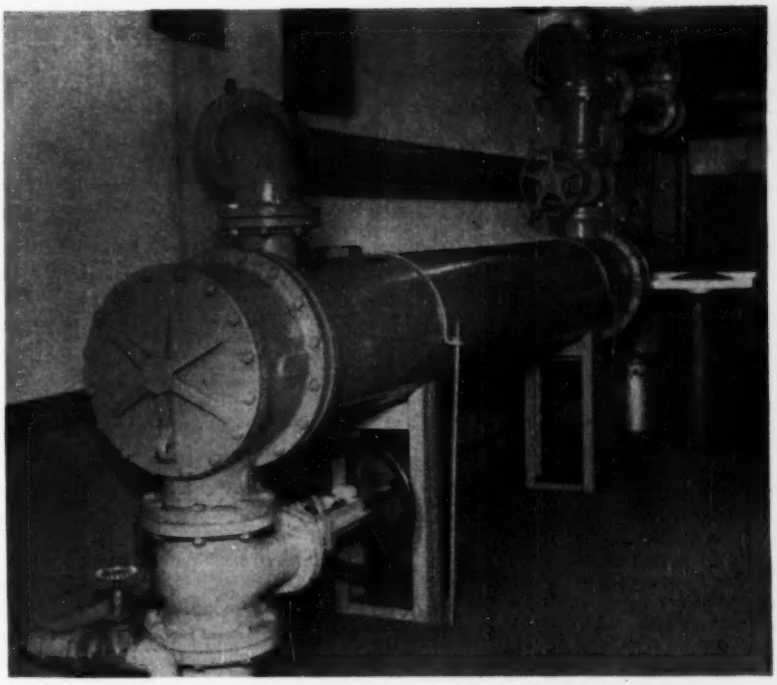
| | |
|---|---|
| Cost pilot oil ..... | $0.00077 |
| Cost gas ..... | 0.00238 |
| Total fuel cost ..... | $0.00315 |

In the fiscal year 1950-51, the diesels averaged a fuel cost per kwhr of $0.00845. Thus, the new engine cut fuel costs 5.3 mills per kwhr, a reduction of 63%. In the six-month period reported, this meant a saving of nearly $13,000.

The engine can be switched instantly from dual-fuel to fuel-diesel operation and there is a second day tank for the 26 gravity diesel fuel.

The big engine has a separate cooling system with a pair of Fairbanks-Morse 6-inch centrifugal pumps, driven by 20-hp motors, to circulate soft water through the engine jackets and the coils of an atmospheric tower. Either rain water or 12-grain city water is used for makeup. The latter is brought to 4-grain hardness in a zeolite softener.

Scavenging air is drawn through a Maxim intake silencer into an air house holding an American air filter with 24 filter elements.



**Lubricating oil for the engine is cooled in this Ross oil cooler.**

The big engine is fully equipped with automatic safety devices. The engine cannot be started unless lube pressure is brought up with the motor-driven auxiliary lube pump. The gas is shut off if scavenging-air pressure, lube pressure, cooling-water pressure, or pilot-oil pressure drops below prescribed minimum. If the gas supply fails, the engine switches automatically to oil.

The plant is operated under the direct supervision of G. G. Wendt, Superintendent of the Water and Light Department. Policy matters are handled in consultation with Mayor Paul Zimmer and the six-man City Council. Councilman Harold B. Bedwell is chairman of the Water and Light Department.

# Portsmouth, Ohio, Establishes Architectural Review Board

A Board of Architectural Review was established by an ordinance of December 17, 1952, and appointed by the Mayor on March 11, 1953. Unlike most other cities that have established such an agency under the building code or by a separate ordinance, Portsmouth created the review body by an amendment to the zoning ordinance.

### Purpose of Board

This Board was not set up to preserve an old historic section or to control the areas surrounding public buildings. Instead, it was established to provide orderly and sound control over large areas zoned for single-family residences and now being rezoned for apartments for atomic plant workers. The Board has broad powers to control the design, type of materials, and other aspects of new or altered multifamily dwellings and nonresidential buildings in Residence B (multifamily) Districts and nonresidential buildings in Residence A and Residence AA (single-family) Districts. The Board of Architectural Review is composed of five members, including:

1. The City Engineer, who is also the secretary of the City Planning Commission
2. The Building Officer, who is the enforcement officer of the zoning ordinance and secretary of the Zoning Board of Appeals
3. One citizen member who is an architect or experienced builder
4. One citizen member who is a representative of a bank or building-loan association
5. One citizen member who is the president of the Portsmouth Real Estate Board

All members of the Board serve without compensation. The Building Officer is the secretary of the Board. Since there is no technical staff, a registered architect, Earl C. Hayes, Jr., has been appointed as the third above-designated member.

The general purpose of the Board of Architectural Review is to safeguard property upon which structures are built, to maintain the high character of development in Portsmouth, and to protect real estate from impairment or loss of value.

### Powers

The Board's powers would include the regulation of: the design, use of materials, finished grade lines and orientation of new buildings; the moving, improvement, razing or other alteration of existing buildings; and the character, size, and cost of the building in relation to existing or desirable structures in the surrounding areas.

This Board will exercise jurisdiction in over half of the areas zoned as residential districts, which are the Residence A, Residence AA and Residence B Districts.

JAMES B. GREGG
*Planning Consultant*
*Portsmouth, Ohio*

**Los Angeles' Terminal Island sewage-treatment plant faced unusual corrosion problems because of sea water in the waste. New design of the settling-tank mechanism, kept free from corrosion by cathodic protection, provided the answer.**

# Corrosion Correction For the Sewage Settling Tank

By W. A. SCHNEIDER
*Waste Disposal Engineer*
*Department of Public Works*
*Los Angeles, Calif.*

THE TERMINAL ISLAND sewage-treatment plant has a tough waste to handle. It presents a problem, not of purification, but of corrosion. In the past, this waste has systematically destroyed the equipment used to provide the purification.

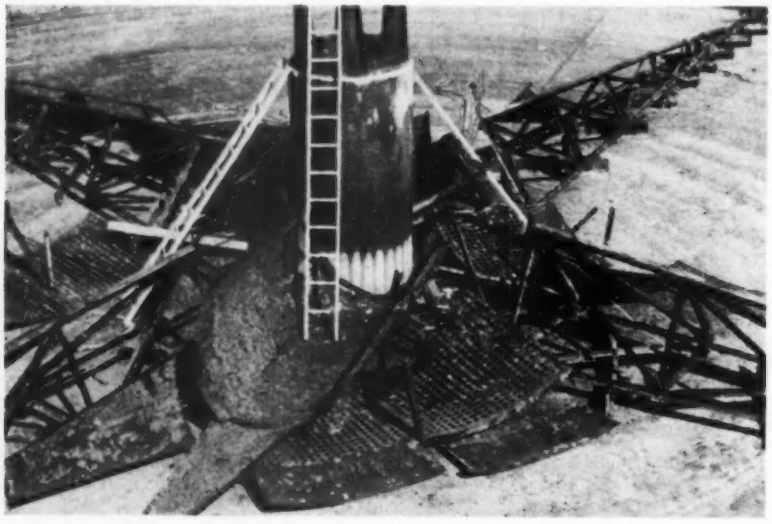
The Terminal Island plant serves an area covering approximately 24 square miles, with a population of 68,000. The area contributes a flow of about 5,800,000 gallons daily, or 85 gallons per capita.

The plant first went into operation in 1936. The designers gave it a dry-weather flow capacity of 7,000,000 gallons daily, so it still is adequate for the job it has at hand, from a hydraulic standpoint.

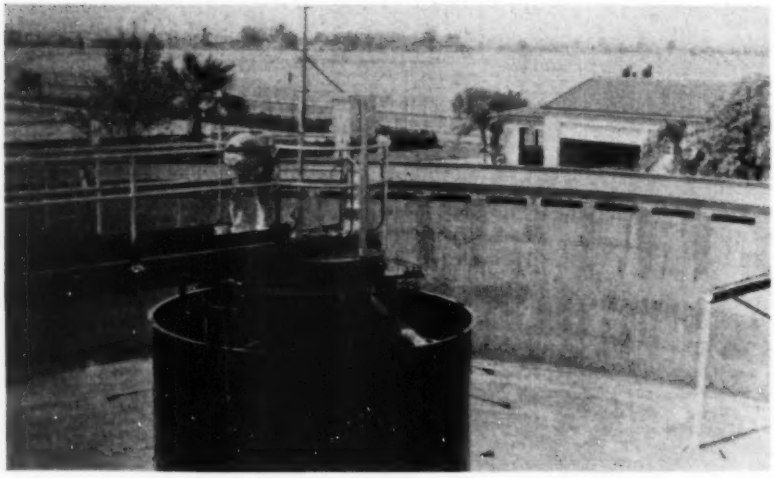
The sewage passes through a hand-raked bar screen, enters an 85-foot-diameter, center-feed, circular settling tank and flows from it through an outfall sewer 1,200 feet long into the outer harbor waters. The sludge goes to a 75-foot-diameter digester. The digested sludge enters any of three sludge concentration tanks for thickening and finally is discharged to open drying beds. The excess liquid is returned to the plant influent line. The gas from the digester is collected in a holder and thence piped to provide fuel for digester heating, a screenings incinerator, and a waste-gas burner.

An interesting point is that the sludge from the drying beds is removed by a fertilizer concern under contract with the city. The contractor is required to prepare the beds for re-use, and in addition to this service the city received a revenue of $1,050 for the sludge removed during the past fiscal year.

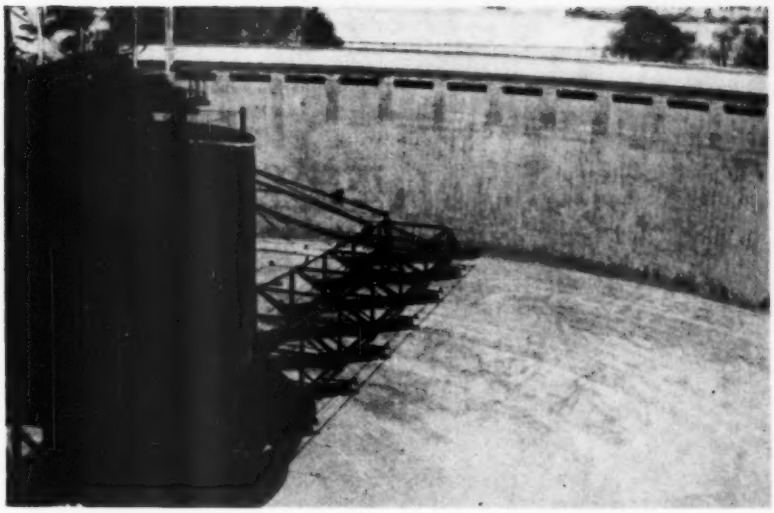
The sludge is good for a fertilizer. Several fish canneries operate at least partially throughout the year. From October to March they operate at full capacity, increasing this type of load



This is how the corroded mechanism in the settling basin looked after eight years of service.

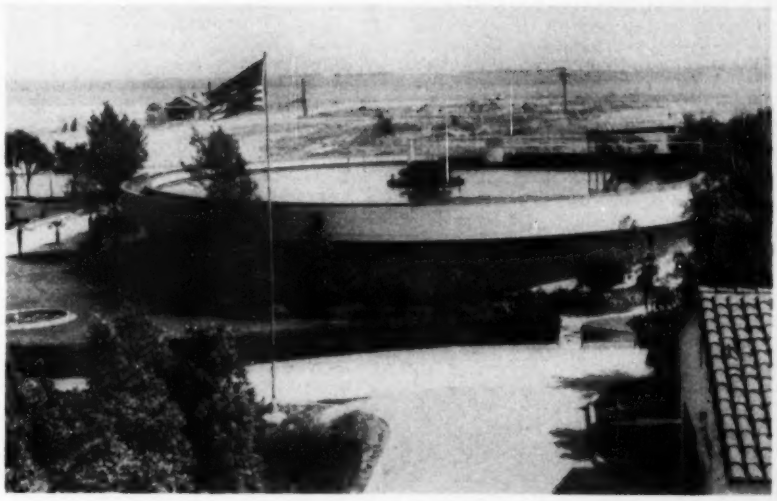


Repairs included a new center column. Note the installation for cathodic protection.



A two-arm sludge-collection mechanism replaced the old four-arm one.

The settling tank as it is today—built to withstand adequately the tough treatment conditions imposed on it.



tremendously when handling the sardine runs.

Wastes from the cannery operations contain a large amount of salt water. Furthermore, since much of the tributary sewer system is below tide level, the plant gets a large volume of sea water by infiltration. These two sources result in an unusually high corrosive potential of the sewage handled in the plant.

### Sacrificial Plates Tried

Everyone was aware that severe conditions existed in the settling basin. Consequently, the Department of Public Works made a thorough inspection of the mechanism in 1944, eight years after the plant went into service. This inspection disclosed that corrosion had progressed to such an extent that some of the structural members required replacing. The department promptly did this, completing the job by cleaning and repainting the mechanism.

The next step was to prevent future corrosion, or at least to minimize its effect. The first experiment required the use of two sacrificial plates, fabricated from iron pile sheeting. These were suspended in the liquid on opposite sides of the settling tank half way between the center column and the effluent weir. These plates underwent periodic inspection from 1944 to 1951, and apparently were providing beneficial protection, as indicated by the electrolytic action taking place on the plate surface.

However, in the fall of 1951, the structural failure of the grease-skimmer arms, which were attached to the supporting beams on the sweep arms, indicated that a thorough inspection of the entire mechanism was required. Representatives of the Bureaus of Engineering and of Sanitation participated in this inspection. The inspectors also asked for recommendations from the various equipment manufacturers.

The study disclosed that a complete replacement was necessary. The inspection team decided to replace the old four-arm sweep with a two-arm unit, and to prevent further corrosion by the use of a cathodic protection device. Since the plant capacity may need to be doubled in the future, a mechanism similar to that proposed for the future settling tank was specified in the replacement of the old unit.

The contract was awarded to Karl Teget who installed a settling tank mechanism furnished by the Process Engineers of Los Angeles. The cathodic protection device was furnished by the Electro Rust-Proofing Company.

This work was completed last spring. While the old parts were being removed, portions of the new mechanism were being assembled adjacent to the settling tank so that the entire work required little more than two weeks. During the interval of replacement, raw sewage was continuously chlorinated to a residual of one part per million by the use of a portable 6,000-pound Wallace & Tiernan chlorinator, the largest of three such units used by the Sewer Maintenance Division when emergency conditions require it.

So today we confidently feel that the Terminal Island plant is tough enough to receive the corrosive sewage that comes to it, give it the treatment needed for purification, and still withstand deterioration from the strong brines that make up the wastes.


**The Annual Index**

**listing by subjects and by cities the articles and items published in THE AMERICAN CITY for the 12 issues for 1952 will be available without charge to subscribers for the magazine. Address requests to 470 Fourth Ave., New York 16, N. Y.**

**M** unicipal
**P** ublic
**R** elations

# *The City Tells Its Story*

Edited by PAN DODD WHEELER
*Executive Director, Government Public Relations Association*

## Annual-report contests produce more reporting, better reports—interest in other MPR techniques is awakened by city competitions

FROM Maine to Tennessee, city people who want to receive better annual reports from their local government and city officials who want to make better reports of municipal operations are getting a boost via annual-report contests. Sponsored by state municipal leagues or university bureaus of local government, the contests give major emphasis to what these pages have long held: adequate, attractive, and promptly published annual reports are an important medium available to local officials for informing citizens about their government and for providing them with a basis for evaluating services furnished by local officials. The annual-report contests are encouraging more cities to make such reports and better reporting by others.

### AMA Takes Note

Contests did such a booming business for cities last year that the American Municipal Association's public-relations committee has recommended that AMA take a hand in helping municipal groups in other states plan and sponsor such contests. The committee report, explaining "How AMA can assist cities in stimulating citizen interest and participation in local government," says AMA can encourage annual reporting by cities by making available plans for annual-report contests. And the committee observes that contests have not only stimulated interest on the part of city officials in reporting, but have also interested them in other MPR techniques.

What is the secret of the success of annual-report contests in Connecticut, Maine, Pennsylvania, and Tennessee? City Manager A. B. Smith, of Alcoa, Tenn., may have the answer. In March of this year, Mr. Smith got out his first annual report of city operations to Alcoa's more than 6,000 people. He said that he had often "thought of publishing such a report" and that all he needed was "stimulation and a little help." The Tennessee Municipal League's annual-report contest furnished the "do it now!" stimulation. Handbook help and articles published by the League, as well as report-preparation assistance from the University's Municipal Advisory Service, gave Mr. Smith the help he needed. In contests for cities of the other three states mentioned, "stimulation and help" have been part and parcel of the competition.

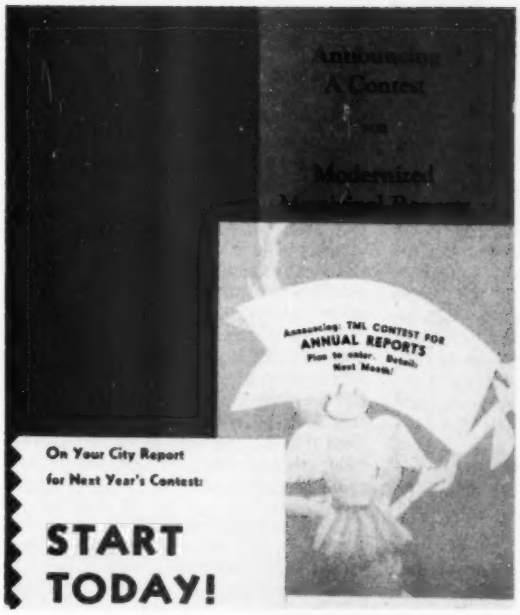
The impetus given municipalities in Tennessee by that state's report contest has been spectacular. In 1950-51 just 3 cities of the 245 incorporated communities issued what qualifies as a full annual report to the people. (Most cities published statements of the municipality's financial status, of course.) For the fiscal year 1951-52, with stimulation from the League's report contest, 15 cities made annual reports and all 15 have entered the reports in the contest for which winners will be announced in June.

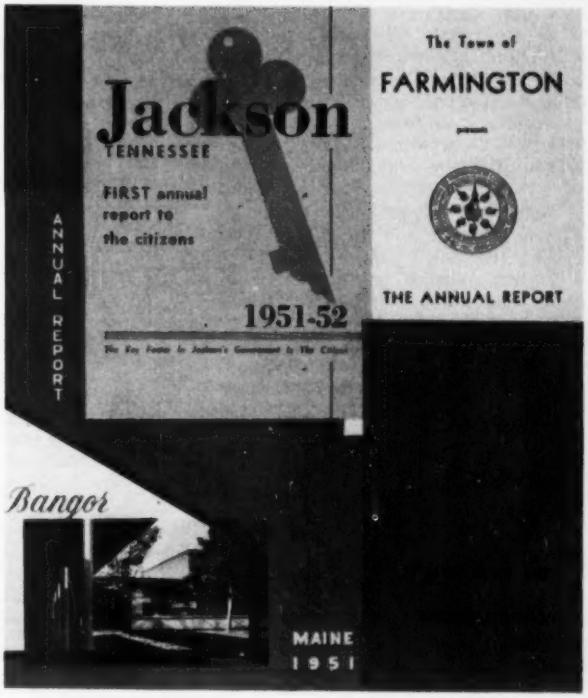
### Incentive to Better Reports

"A long-range proposition," is the way Director Joseph Loughlin, of the Institute of Public Service, at the University of Connecticut, describes his state's annual-report contest for cities. The ninth annual contest is now in progress and Mr. Loughlin calls it and the other eight previous contests "an incentive to better municipal reporting." Since some 150 Connecticut cities issue annual reports, the impact of the contest is

Tennessee's contest provided help from Mrs. Pan Dodd Wheeler to Mayor W. C. Keaton, of Hohenwald (left), and Emmett Guy, of Jackson (right), for their first annual reports. Mayor E. P. Crutcher (center), of Chapel Hill, looks on.

Judges of Connecticut's annual-report contest included Karl A. Bosworth, government professor at the University of Connecticut; Robert D. Fleischer, Waterbury Taxpayers Association; and Robert J. Leeney, of the *New Haven Register*.






**Cities are urged to make annual reports (and to participate in reports contests) by announcements (top, left); follow-through help and "how-to-do-it" materials (top, right); and by awards and statewide publicity and recognition (above). Results of the contest efforts (right) are first annual reports for some cities, improved reports for others . . . like those of Jackson, Tenn., and the prize-winning reports for Bangor, Maine; Narberth, Pa.; and Farmington, Conn.**

directed not at urging city officials to make reports, but rather at helping city officials make more attractive, more readable, and more prompt reports.

### Citizen-Reader Is Maine's Target

"Conciseness" and "original and novel features" are given high priority in judging Maine's municipal-report contest which this year had 20 award-winning cities. Sponsored by the Maine Municipal Association, the contest helps to direct city reports toward the average citizen-reader. The contest provides incentive for report-makers to publish what people want to look at, are impelled to read, and will keep around the house for future reference.

"Contests are a good way to encourage local government officials to make annual reports to citizens," Charles LeeDecker wrote in announcing the second annual-report contest for Pennsylvania cities, now going on. Mr. LeeDecker, assistant director of the sponsoring Institute of Local Government, at State College of Pennsylvania, said that report winners were so enthusiastic after the first contest, the Institute is convinced future city reports will be more adequate. Consequently, competition is expected to be even stiffer among Pennsylvania cities in the current contest.

Another strong believer in contests to stimulate annual reports is the Tennessee Valley Public Power Association, which yearly sponsors competition among municipal (and rural) distributors of TVA power. TVPPA representatives say that the increasing "excellence of reports"

from the 145 power distributors in seven Valley states can be traced to the competitive spirit which the contest fosters. TVA provides assistance, too, by sending a staff member to help power managers in report-publication and by encouraging distributors to make comparisons between their reports and the annual prize winners.

Paraphernalia for report contests is comparatively simple and inexpensive. Contest announcements issued by sponsoring groups contain not only contest rules, but also "tips" on how to enliven annual reports, the basis for awards, and in the case of the Tennessee contest, information on "how to get started" with an annual report since in Tennessee the drive was a pioneering effort. Sponsors appoint judges and provide them with score sheets to simplify the grading of reports entered in the contest.

Follow-through for the contests last year included providing city officials with bibliographies of report-aids, new ideas in format and presentation from cities in other states, and authoritative how-to-do-it articles by city officials and publications professionals. Tennessee's MTAS at the university collected more than 200 award-winning annual reports from private business and industrial firms (contest sponsored by *Business Week* magazine), and loaned these reports to city officials. The corporation reports contained many fresh ideas.

Contest awards, in the states already mentioned, are framed certificates, suitable for hanging in city hall. Prize money and expensive trophies have been avoided. Sponsors report that the honor of winning a superior rating carries sufficient prestige to make the certificates coveted possessions. In all instances, awards are made at conventions, banquets, or on other special occasions and are given state-wide newspaper, radio, and television publicity.

### Why a Contest?

The case for annual-report contests — and for annual reports — is summed up in these paragraphs from the Tennessee contest announcement:

**Why a contest? Because the League believes reporting to citizens is a duty of the city official. The League wants to encourage city officials to make annual reports to citizens. And a contest is a good way to do the encouraging!**

**Why an annual report? Because city officials in Tennessee, like city officials everywhere, are concerned over the "I don't give a darn" attitude of the average person toward his municipal government. In a town of 200 people or the city of 200,000, apathetic citizenship fosters resistance to progressive measures and a "why-vote?" complex toward bond referendums and municipal elections. The League believes that if more people know more about their city government, they'll be more interested in it and they'll act more intelligently about it. One way of increasing citizen interest is by the making of an annual report.**

# Public Employees' Retirement Coverage

ELEVEN YEARS AGO only 45% of the personnel on state- and local-government payrolls were covered by retirement systems and none was under the Federal Old Age and Survivors Insurance Program. Today, according to a survey conducted by the Bureau of the Census, 66% of state- and local-government personnel are covered by employee retirement plans. Of the remainder not covered, 30% were participating in the Federal Old Age and Survivors Insurance Program with wage deductions and payroll taxes being paid by their employing governments under approved agreements with the federal government.

The data in this report are estimates based on a sample survey. The total employment figure of 4,500,000 persons on state- and local-government payrolls in October 1952 of whom 3,000,000 were covered by employee retirement plans include part-time and temporary personnel. The "noncovered" group comprises both employees whose positions are outside any type of retirement provisions and those in positions potentially subject to coverage but individually excluded by option, age, recency of employment, or other disqualifying factors.

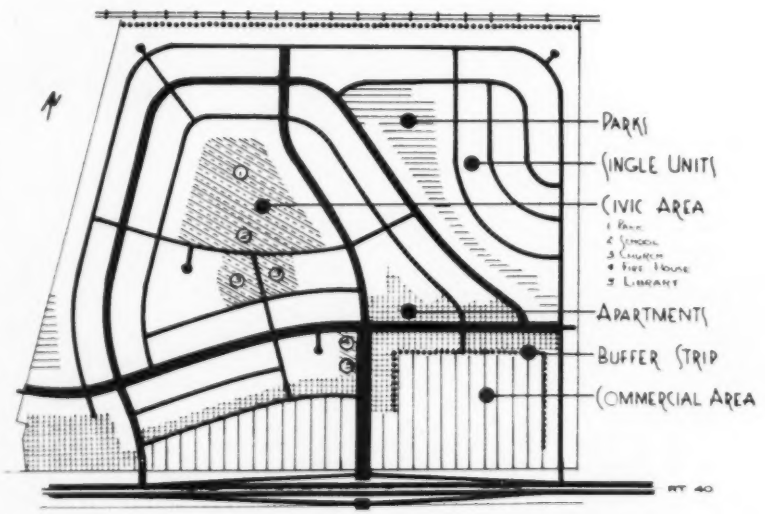
Details of the survey and data by states are available in the publication, "Retirement Coverage of State and Local Government Employees," March 1953, No. 30. It is for sale by the Bureau of the Census, Washington 25, D. C., at a cost of 10 cents per copy.

# Planners Help Develop a New Community Near Columbus, Ohio

A RARE OPPORTUNITY for planners to help develop a new town has presented itself near Columbus, Ohio. Richard W. McGinnis, Chief Planner of the Franklin County Regional Planning Commission, reports that the staff of the Commission recently participated in planning the 1,100-acre community known as Lincoln Village, located on U. S. Route 40, west of Columbus. The community is being built by the Peoples Development Company—a Farm Bureau Insurance Company subsidiary — but the final design was the result of collaboration between designers and officials of the development company, a private consultant, FHA, the City of Columbus, and the Regional Planning Commission.

The Commission achieved success on the following points which were considered essential: reduction of intersections, space for public buildings, adequate playground and park areas around the central school, a clear-cut thoroughfare plan, and a design which will diminish future rezoning difficulties.

Lincoln Village is laid out on a neighborhood pattern with a central civic area containing space for a school, park, churches, fire house, and library. The community will contain single-family homes, apartments, a business district with a regional shopping center, a motel, office buildings, and a major industrial district. Construction will start this spring after utility lines are installed.




**Lincoln Village—schematic plan of streets and land-use areas.**

# Public Opinion Survey in Kalamazoo, Mich.

**WHAT OPINIONS do the citizens of Kalamazoo have concerning municipal services? A serious, scientific effort was made during the spring of 1952 to find out. Under the direction of the Kalamazoo Social Science Research Group, a survey of public opinion concerning municipal services in Kalamazoo was conducted. It was a joint activity of the departments of sociology of Western Michigan College and Kalamazoo College and The W. E. Upjohn Institute for Community Research, and was under the immediate supervision of the authors of this statement.**

By DR. LEONARD C. KERCHER
*Western Michigan College*
DR. RAYMOND L. HIGHTOWER
*Kalamazoo College*
*and*
SAMUEL V. BENNETT
*The W. E. Upjohn Institute for Community Research*

THE FOLLOWING ELEVEN services, that are either provided for now or are potentially available to the people of Kalamazoo, were covered in the survey here summarized: water softening, bus system, municipal light, medical care for low-income families, home-accident prevention, nutritional program, well-child conference, municipal auditorium, city planning, traffic regulation, and public recreation.

The data were collected by the sample survey technique. This method involves the interviewing of a selected sample of adults which constitute a representative cross section of the adult population living in private households within the city limits of Kalamazoo. Senior students in the courses in social research at Western Michigan College and Kalamazoo College conducted the interviews during May 1952. The opinions gathered in these interviews are considered to be representative of the opinions that might have been obtained had the whole adult population been interviewed.

The representative sample used in this survey was a joint product of the Survey-Research Center of the University of Michigan and the Kalamazoo Social Science Research Group. It was obtained by a method known as "area sampling," so-called because the process starts from "block" areas as its base. In general, it involves the following steps: (1) the division of the city proper into area segments or "blocks;" (2) the selection of sample blocks from all the blocks delineated; (3) the systematic listing of all the dwelling units within each of the sample blocks; (4) the selection of a sample of dwelling units from all of the dwelling units in the sample blocks, and (5) the choosing within each sample dwelling unit of some adult, 21 years or over, to interview.

### Summary

Of the eleven municipal services on which public opinion was sampled, eight are currently being provided by the City (or County) of Kalamazoo. The general question raised with regard to these services was whether they should either be maintained or extended. The responses are briefly recapitulated here.

1. *Light Service.* There was general approval of the city's policy of producing electricity for its own use by eight out of ten respondents, of producing electricity to businesses, industries, and homes by six out of ten respondents. Those who approved the practice of selling electricity to businesses, industries, and residences also favored the expansion of this service for these purposes.
2. *Medical Care.* Should the "medically indigent" be provided with public assistance when needed? Three respondents out of four said "yes." Of those who said "yes," almost the same proportion favored the use of city funds for this purpose.
3. *Home-Accident Prevention.* Six persons out of ten expressed the opinion that this program, heretofore supported by private funds, should be continued with the use of public money.
4. *Nutritional Program.* About half the respondents believed that the present program should be expanded in the manner previously indicated. Over a third replied in the negative.
5. *Well-Child Conference.* The question raised was whether this program of the health department should be continued at its present level. Almost nine out of ten said "yes." Of these respondents, however, only a little over half thought the program should be expanded to provide the same service to all who requested them.
6. *City Planning.* The idea of making long-range plans for various municipal facilities received widespread support. The number of persons who said "yes" relative to those who said "no" was about 22 to 1 for schools, parks, and playgrounds, and almost 12 to 1 in the case of streets, and about 9 to 1 for public utilities. With regard to making plans for the future land requirements of various segments of the economy, the favorable replies were 4 to 1 in the case of land for business and industry, and 5 to 1 in the case of residential land.
7. *Traffic Problem.* While most persons (seven out of ten) felt that traffic was now reasonably well controlled, an even greater number (almost nine out of ten) felt that the city should take further steps to improve its traffic problem. More one-way streets and the widening of existing streets were more favorably regarded than the construction of new streets and the prohibition of parking on major streets. A majority of respondents did not favor extension of additional parking prohibitions on major streets.
8. *Public Recreation Facilities.* What recreational facilities should the city provide in the future? Opinions were asked about six specific facilities. Most favored was a youth canteen (seven out of ten). Least favored was another golf course (about one in four said "yes").

Two of the eleven questions were concerned with new facilities: a water-softening service and a municipal auditorium.

9. *Water Softening Service.* One respondent out of every three was using a water-softening service. Of those without such service, only about one out of seven planned to install such a service. However, slightly more than half of the persons who replied to the question of whether the city should install a system to soften all city water gave a "yes" answer. Of these, nearly seven in ten indicated that they would favor such a service even if it meant an increase of as much as 50% in city water bills.
10. *Municipal Auditorium.* A little over half the respondents felt that Kalamazoo should have a municipal auditorium which was suitable for sports events, large conventions, and exhibits. Opinion as to how such a building should be paid for was not crystallized.

The final question was concerned with the operation of the municipal bus system.

11. *Bus System.* Most residents of the city were reasonably well satisfied with the present bus service from a number of specific standpoints and as a whole. Should the city buy the local bus system? Almost half the respondents felt that it should not, and a little over one-fourth felt it should. The remaining fourth had "no opinion" on this question.

Copies of the report summarized above may be obtained free of charge. For information, see a listing of the publication on page 175 of this issue.

# New York City Budget Bureau Conducts Office Machine Demonstrations

## *as part of its training for management analysts*

**Herman Limberg, Chief of the Training and Education Section of the Division of Analysis of the New York City Bureau of the Budget, at a business-machine-application clinic. By acquiring first-hand insight into the practical applications of office machines and appliances, Mr. Limberg says, the staff of the Division of Analysis is able to advise and assist city departments in effecting improvements in administration. The machines, from left to right, are the Underwood printing calculator, continuous-form billing machine, electric typewriter, Elliott Fisher accounting machine, and three Underwood Sundstrand accounting machines.**

BUDGET TRIMMING is hardly ever popular and it is a rare accomplishment in municipal government when a budget bureau can achieve the maximum reduction in requests for funds with a minimum of anguish to the departments requesting them. A giant stride toward this ideal has been made by New York City's Budget Director Abraham D. Beame, whose policy is to render all possible staff assistance to departments in the difficult job of cutting costs without impairing services.

### Director Beame's Approach

Director Beame's approach is to apply scientific management principles in two ways. First, he uses the familiar survey technique, concentrating on outstanding problems to find sound management solutions. Secondly, he applies the program technique, which involves the gradual extension of desirable management practices until eventually they cover the whole city. The budget unit which carries the responsibility for these activities is the Division of Analysis. This unit conducts the surveys and directs the programs, all of which are aimed at better management and lower costs.

A major effort is being made along the line of mechanization which, with such other projects as Forms Control, Records Management, Accident Control, Employees' Suggestions, and Training, constitutes the important program elements of the city's management activity. When the mechanization program was launched by the Division of Analysis, an immediate practical step was the training of staff analysts in the type of machines and services available. Director Beame thus contrived to put his analysts in a favorable position to answer the dozens of questions which always spring up when mechanization is considered. The department official, pondering the several advantages of different machines put forward by their manufacturers, can call upon a trained specialist to take the guesswork out of the solution.

There are many ramifications to the city's management-improvement program since it involves relationships with every major employer of city personnel, special management units set up within the departments themselves, and a continuing follow-up of all management activity by a top-level group of appointees known as the Board of Management Improvement.

### Specialists Witness Demonstrations of Equipment

Obviously, another essential relationship to be developed is that with the manufacturers of office equipment. The Division of Analysis develops and maintains the necessary contacts and makes available to manufacturers frequent opportunities for demonstrating their equipment to its staff specialists. The significance of this kind of mechanization activity becomes apparent when it is realized that the city pays over $1,000,000 a year for rental of punch-card equipment alone. Among the various kinds of office machines now used in city departments are tabulating, accounting, bookkeeping, mailing, and printing machines, duplicators, microfilm devices, and photographic reproducers.

Manufacturers' demonstrations for the city's management analysts are arranged through the Division of Analysis' Training Section and are held in the Municipal Building. A recent and typical demonstration was conducted by the Underwood Corporation. The company's newest electric typewriter was introduced during a three-hour meeting held in the Municipal Building for a 25-member group as part of the Training Program. The register line-finding device used for pin-feed, continuous forms, and continuous one-time carbons was demonstrated along with the all-electric continuous form-billing machine. This machine uses either a carbon roll or carbon sheet bracket attachment which automatically retracts the carbon paper as the form is removed from the machine.

Emphasis during the second phase of the meeting was on the exclusive flat-platen principle of the Under-

wood Elliott Fisher line of writing and accounting machines. This machine permits preparation of various size forms of different weights and eliminates the handling of carbon paper and simplifies the insertion, collation, and removal of all forms.

The session's final phase dealt with the Underwood Sundstrand line of 10-key adding and accounting machines. Among machines shown in this category were the printing calculator, the duplex tabulator, and regular adding machines. An accounting machine with two crossfooters was utilized in a ledger-posting operation, after which a 10-register machine handled an appropriation ledger operation and produced six automatic crossfooting balances. Capping the session was a demonstration of a machine set up for a real-estate assessment and tax-billing problem. Representing the company at the meeting were F. A. Greis, New York District Manager, and C. S. Saltzman and J. A. Auerbach of the New York Regional Office.

The meetings appear to be stimulating for the manufacturers as well as useful for the city staff. For instance, the Underwood Corporation announced that a similar seminar will be conducted before interested groups in many other cities. This type of promotion has developed mutual understanding between manufacturers and city officials and has resulted in management benefits in such apparently remote areas as street lighting, traffic control, and fire fighting.

The demonstration of the machines and visible systems coupled with the opportunity to have pertinent questions answered immediately have given municipal officials the kind of background favorable for sales of the machines which are daily proving their usefulness in municipal operations.

# Fighting Fires in Miami, Fla.

BESIDES nearly perfect weather and winter vacations, Miami can produce mean industrial fires, and does. Among its many types of manufacture are furniture, mattresses, airplane parts, pharmaceuticals, paints, insecticides, fertilizers, cigars, leather products, candy, beverages — each capable of testing a fire department's special skills and teamwork.

Fire Chief Henry R. Chase and his department need—and use—the most modern fire-fighting techniques, training, and equipment. A fireman never stops learning. Whole companies go "back to school" at regular intervals, and fire-company officers continue between times to learn the latest ideas and then, serving as instructors, pass along this knowledge to their men.

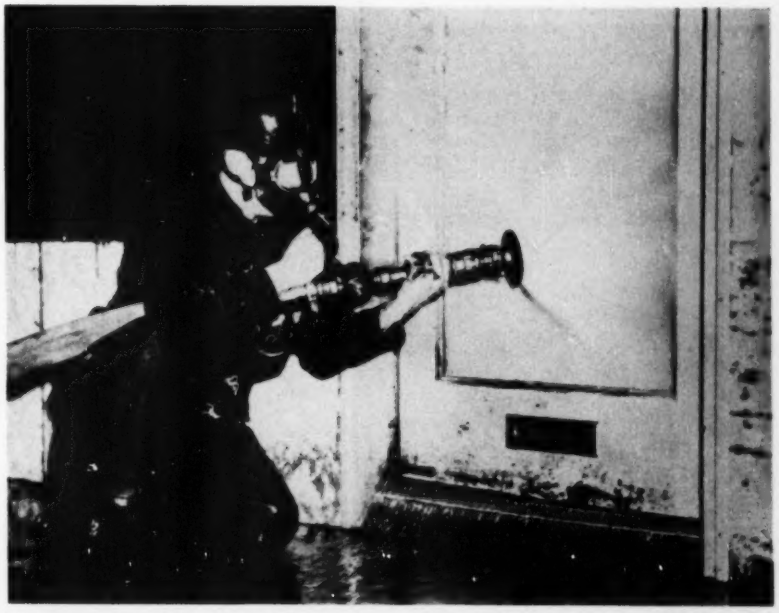
### Men Kept in Tip-Top Condition

Every fireman must play at least one game of volleyball each day, and other athletics help keep the men in top physical shape. If a man plays a game of horseshoes, he picks up the shoes himself—"good for the waistline," says Chief Chase, in explaining this edict.

The 471 men are organized in 22 combat companies, including nine engine companies, six truck companies, four chemical companies, two hose companies, and a rescue squad. Chief Chase believes in rapid attack on a fire without throwing water aimlessly. This requires entering the fire area quickly and cooling it with fog streams to a temperature below the ignition point, without ventilation. All-out use of masks is vital. Every piece of rolling equipment, like the fire stations, is equipped with Motorola two-way radio, for time is the most precious element in fire-fighting efficiency, far beyond the dollars which good communications cost. Chemical companies use "wet water" made with Unox, and fog, for greatest penetration with minimum water. All men on duty are equipped with Mine Safety Appliances All-Service gas masks with speaking-diaphragm face pieces. The men also wear MSA helmets of high-strength laminated plastic, light in weight and not affected by water, chemicals, or electricity.

Chief Chase is quick to point out that the best techniques and apparatus are only as good as their application. To give an odd example, a submarine came into Miami Bay and sent out a fire alarm. Chief Chase reported quickly to the scene, studied the situation and ordered a hole cut in the top of the hull. Within minutes thereafter the fog and wet water were at work, and shortly afterward the fire was out. The legend is that the Chief apparently had figured a long time ago just what he would have to do if a submarine came into port with a fire in her innards.

**Fire Chief Henry R. Chase of Miami, Fla.**



**Masks are "second faces" for Miami firemen; here's a staff shot of a masked fireman in action at a big blaze at 3 a.m.**

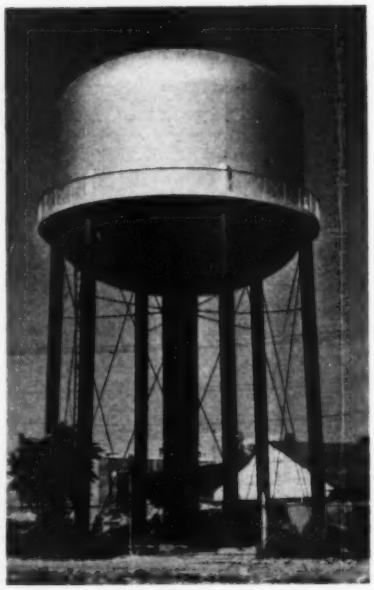
# *The Water Gets Consistently Better*

**Dayton, Ohio, provides new filtering and softening facilities that improve the water and keep it from varying in quality**

By LOYD C. HUFFMAN
*Director of Water and Sewers*
*Dayton, Ohio*

THE PROBLEM in Dayton wasn't so much the amount of water as its quality. And the question of quality wasn't so much that of sanitation as of convenience to the user. The answer to that question can be found in Dayton's new 96 mgd (million gallons daily) water-filtering and softening plant.

Dayton gets its water from a series of wells. Of these 40 are individually pumped; they vary from 75 to 185 feet in depth and use Peerless, Cook, Layne, Worthington, and A. O. Smith well pumps to deliver all water. There are 28 other 8-inch wells that are pumped collectively; these were drilled in 1921 and are about 40 feet deep. The deep wells deliver 100 mgd and the shallow wells produce 5 mgd. All draw water from an underground supply that is recharged by Mad River, a tributary of the Great Miami River. The city maintains a continuing program of scarifying the recharge area to encourage its action.



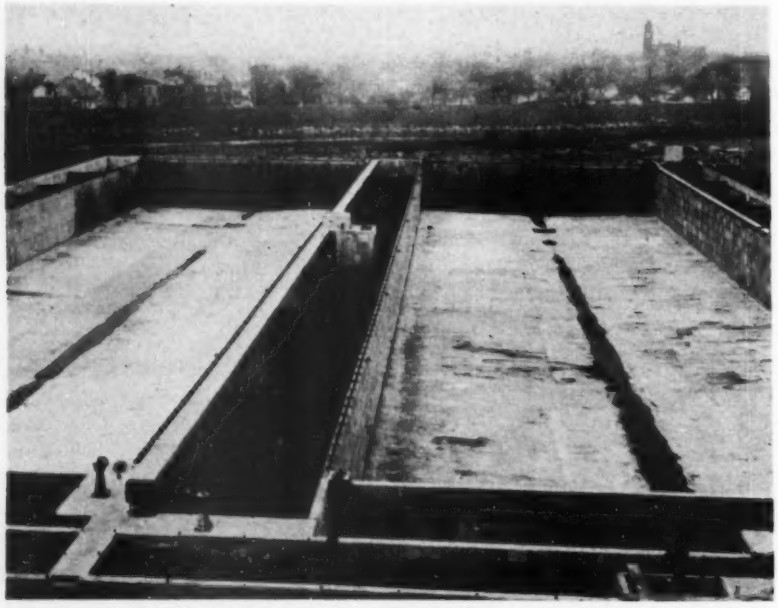
**The filters get wash water from this trim-looking tower.**

However, the water that comes from this aquifer is relatively hard, containing roughly 355 ppm (parts per million) of total hardness. The deep wells also are troubled by an iron content of as much as one ppm at times. The shallow wells deliver water with an iron content of 0.1 to 0.2 ppm, not nearly so bad, but large enough to be troublesome.

The Ohio State Board of Health has not felt entirely satisfied with this set-up, feeling that the possibility existed of contaminated water getting into the city mains. However, when the public pressure became great enough to demand that the hardness be removed from the water, then the new water filtration and softening plant came into being.

The plant receives its water through an 84-inch precast concrete pipe. As it enters the plant, it receives its dosage of lime, alum, and soda ash through separate Omega belt gravimetric feeders. The water then goes through the flocculation and settling basins where it is detained for a period of four hours at maximum capacity. Treatment is effected by Dorrco Flocculators followed by Monorakes.

The settled water then goes to a set of 16 filters, each designed to receive water at the rate of 6 mgd. The filter rate on the sand beds is 3 gallons per square foot per minute.



**How the settling tanks looked during construction.**

### Filter Details

The filters have fixed-nozzle surface washes, and Builders-Providence filter controls. They have sand and gravel in the filters to provide the filtering action. Since the softened water is not aggressive, the designers used cast-iron underdrains without fear of corrosive damage.

To keep the water from being excessively alkaline, the plant recarbonates the water by using Ozark-Mahoning underwater burners. These burners use natural gas and are regulated by a Leeds and Northrup recorder controller which continuously measures pH of water, and adjusts burners automatically so that water stays within specified pH limits.

The handling of chemicals in the plant is entirely automatic; Brady equipment is used. The plant has

seven chemical bins, each able to store 90 tons of material. In addition, 400 tons of lime can be stored under the tracks in the chemical-unloading building. Lime can be unloaded by gravity to this 400-ton storage bin. The balance is unloaded pneumatically.

### Tank Protected from Corrosion

The water from the plant receives its final sterilization by means of Wallace and Tiernan chlorinators and then travels on to the clear well, which consists of two 1,000,000-gallon underground reservoirs. The plant has a Chicago Bridge and Iron elevated water tank that provides wash water for the filters. This tank is protected from corrossion by the use of a Harco cathodic protection device.

The distribution system has four underground reservoirs with a capacity of 46,000,000 gallons, two elevated tanks, each holding 2,000,000 gallons, and six standpipes having a capacity of 6,500,000 gallons. From this new plant the city now will be able to get water free enough of hardness to make it much more useful to our people, and processed so that it will be protected against virtually any contamination.

**This building houses the filters and controls for the new softening plant.**

# First Service Area Chosen for Garden State Parkway

A TWELVE-ACRE area abutting the New Jersey Garden State Parkway, north of U.S. Route 22, has been selected by the New Jersey Highway Authority to provide eating and service-station facilities for northbound traffic. This tract, located on a rise of ground between Vaux Hall Road and the Elizabeth River, at Hillside, Union County, lends itself to landscape treatment and offers an excellent over-look area, said Orrie de Nooyer, secretary of the Authority. The architectural treatment of the buildings may be New Jersey Colonial motif.

The proposed layout of this service area is shown in the accompanying plan, reproduced from the first issue (March 1953) of the Authority's bulletin, *Garden State Parkway News*.

The Highway Authority, in keeping with its policy of providing every practical safety feature to protect motorists from accidents, has placed a ban on the sale of alcoholic beverages at the service areas.

### Safety Features

Because of the bad accident record of the existing New Jersey Turnpike where 60 miles an hour is permitted, the top speed limit on the parkway will be 50 miles.

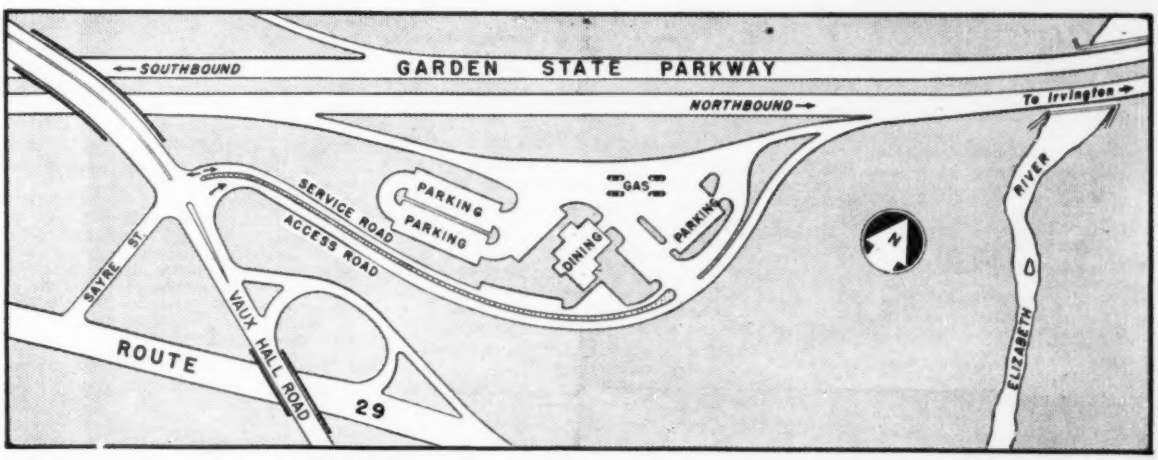
Roadside use for either commercial or residential purposes will be prohibited on the parkway. Opposing streams of traffic will be separated by a center island averaging 100 feet in width—from 5 feet on bridges to 300 feet in open country. Foliage of center-island plantings will shield drivers from oncoming headlights.

Construction will provide two separate roadways, each carrying one-way traffic. Each roadway will have two or three 12-foot lanes. Curves will be engineered to accommodate prevailing speeds. Most grades will be held to a maximum of 3%.

Another safety feature will be ample stabilized shoulders to allow the driver of a disabled vehicle to disengage his car from the fast-moving traffic flow easily and safely.

Ransford J. Abbott, chairman of the New Jersey Highway Authority, expressed the belief that the Parkway can be built for an estimated $285,000,000. Ten contracts totaling over $20,000,000 have already been awarded, 22 miles of the parkway are now in use. Fifty miles, running from Paterson to Perth Amboy, are scheduled to be ready by next spring and the entire road is to be opened later next year.

When completed, the parkway will extend 165 miles from Paterson to Cape May—almost the entire length of the State of New Jersey.



# *White House Gets Views of Local Officials*

**Representatives of local government have opportunity to express views on scope and conduct of the President's proposed commission on relationships between the federal, state and local governments**

UNITED PRESS PHOTO

**President Eisenhower poses with United States officials and representatives of city, county, and state governments who were invited to discuss preliminary plans for a commission for planning the elimination of overlapping federal and state functions.**

ON MARCH 30, 1953, President Eisenhower recommended that the Congress enact legislation to establish a Commission on Governmental Functions and Fiscal Resources, to make a thorough study of grants-in-aid activities and the problems of finance and federal-state relations which attend them.

Representatives of six local-government groups were invited to a White House Conference on March 31 to express their views on the proper scope and conduct of the proposed inquiry. The participants were:

*Federal Participants:*
- Sherman Adams, Assistant to the President
- Oveta Culp Hobby, Administrator of Federal Security
- Marion Folsom, Under Secretary of the Treasury
- Bernard Shanley, Acting Special Counsel to the President
- Gabriel Hauge, Administrative Assistant to the President
- Elmer B. Staats, Assistant Director of the Budget

*American Municipal Association:*
- William B. Hartsfield, President; Mayor of Atlanta, Ga.
- William V. Bailey, Mayor of Battle Creek, Mich.
- Carl H. Chatters, Executive Director of AMA, Chicago, Ill.

*International City Managers' Association:*
- Clarence H. Elliott, president; City Manager of Kalamazoo, Mich.
- Sherwood Reeder, City Manager of Richmond, Va.
- Orin F. Moltin, Assistant Director of ICMA, Chicago, Ill.

*Municipal Finance Officers Association:*
- E. Lynn Crossley, President; City Auditor, Dallas, Texas
- Lewis F. Lang, First Deputy City Comptroller, New York, N. Y.
- Joseph F. Clark, Executive Director of MFOA, Chicago, Ill.

*National Association of County Officials:*
- Donald C. Scribner, Vice-President; Fulton, County, Johnstown, N. Y.
- Norman A. Pell, County Court House, Easton, Pennsylvania
- Keith Seegmiller, Executive Director of NACO, Washington, D. C.

*National Institute of Municipal Law Officers:*
- David M. Proctor, President; City Counselor, Kansas City, Mo.
- Denis M. Hurley, Corporation Counsel, New York, N. Y.
- Charles S. Rhyne, General Counsel of NIMLO, Washington, D. C.

*United States Conference of Mayors:*
- Martin H. Kennelly, President; Mayor of Chicago, Illinois
- Thomas Burke, Mayor of Cleveland, Ohio
- Paul V. Betters, Executive Director of USCM, Washington, D. C.

## Statements in Brief

Excerpts of some of the statements at the meeting are given below:

MAYOR HARTSFIELD pointed out that there are at least nine major reasons for a national commission study of federal, state, and local relations. These are:

1. The competition for revenues
2. The alleged overlapping and duplication of governmental services
3. The impact on municipalities of the accelerated national defense program
4. The effect on local governments of federal grants-in-aid
5. The demands for payments-in-lieu of taxes on federal property
6. The impact of federal standards and federal personnel on local affairs
7. The impact of various federal programs on the demand for local services and expenditures
8. The need for a consistent and known policy at the federal level with respect to all phases of state and local relations
9. The growth of the national interest in activities which originally were performed and financed by state or local governments.

CHARLES H. ELLIOT, speaking on the goal of the commission, said:

The goal of the commission and of Congress should be better coordination and administration of public service among the several levels of government. . . . We believe that the commission should take a very broad approach to the problem of intergovernmental relations. We believe the goal should be to ascertain how best to administer and finance the public services that people want.

We believe that if the commission proposes new programs or if the federal government considers discontinuing or reducing any program, careful consideration should be given to the possible effects of such changes, and when they should be made.

JOSEPH CLARK stated:

The implementation of federal social and economic policies has brought into existence new forces and problems on top of old ones at state and local levels. It is the function of this association to discover how such policies affect state and local governments, and nationally, and how best to cope with problems in order to preserve the financial well-being of expanding local communities in urban and rural areas.

In endorsing the President's proposed commission, DONALD C. SCRIBNER said:

The National Association of County Of-

ficials favors such a commission and such a study. . . . We believe it should be emphasized . . . that every effort should be made in any study of intergovernmental relations to drive directly and speedily toward solution of particular problems."

DAVID M. PROCTOR pointed out the complexities of burdens on local governments in the following statement:

The shift of population . . . from the rural to the urban areas . . . the advent of an incredible increase in the number of motor vehicles, with their repercussion on traffic, parking, and the crippling impact on local transit systems, many of which represent a very sick industry; the aviation industry, with its rapidly growing need of sites and installations in and near cities; inflation and its spiral of rising costs, making carefully prepared budgets little more than mingled guesses and hope, the cost of operating the federal government in financing national defense presently taking from the taxpayers of the cities many times the amount collected for local government . . . the atomic bomb bringing the stunning realization that cities will be chief targets in the event of attack . . . and other recent developments . . . have arrived with almost the suddenness and force of a torrential flood through no measurable fault or failure of the cities. . . . The cities will continue to put forth their mightiest effort to adjust their economies to the new multiple burdens . . . this will not solve the problem. . . . We are expecting that they [the states] will relax certain restrictions now hampering the cities, and the federal government must continue a course of intelligent cooperation with the cities. . . ."

DENIS M. HURLEY listed nine proposals for a code of fair procedure to be followed by the President's proposed commission:

1. The appointment as non-Congressional members of the commission of persons with outstanding records of actual experience in the service of each level of government . . . and, of course . . . the public should be represented through labor, commerce, and industry. . . .
2. The appointment to the Advisory Committee of experienced persons as to each phase of the studies and investigations to be undertaken. . . .
3. The employment of a technical staff of competent persons. . . .
4. The holding of adequate, well-planned public hearings after due notice at which officials from all levels of government and other interested organizations and persons of competence . . . may present data, views, and recommendations. . . .
5. After the hearings have been held, the release of tentative findings, conclusions, and recommendations. . . .
6. Notice to these officials of all levels of government who are interested in the allowance of adequate time . . . within which exceptions, objections, comments, and suggestions on these tentative findings . . . may be filed. . . .
7. The holding of a public hearing or hearings upon such exceptions. . . .
8. The release of final findings, conclusions, and recommendations. . . .
9. No final findings, conclusions, or recommendations to be released, the substance of which has not been first presented in tentative form, as above provided. . . .

The recommendations of the United States Conference of Mayors were presented, in a printed memorandum, by its president, Mayor Martin H. Kennelly, of Chicago. As to the scope of the inquiry proposed by the President, this memorandum recommended—

that all of the important federal-state-local grant-in-aid programs be studied. This would include the following: social security, public health, education, highways, airports, civil defense, public housing, slum clearance and redevelopment, hospital construction, and the school-lunch program. It is also highly important that the whole federal-state-local tax situation be reviewed and specific recommendations made for elimination of duplication and coordination. This is a most urgent phase of any inquiry.

On April 14, the Subcommittee on Roads of the House Public Works Committee initiated hearings on all phases of the present Federal Highway Aid Program. Thus, the House Committee is going to proceed on a study of this program without waiting for the President's Commission on Governmental Functions and Fiscal Resources to be set up and operating.

### Second Development Since the Meeting

The new Housing and Home Finance Administrator, Albert M. Cole, has announced that he is going to conduct an independent study of the over-all housing program—likewise independent of anything the Commission might do.

# Franklin County, Ohio, Civil Defense Communication Plan

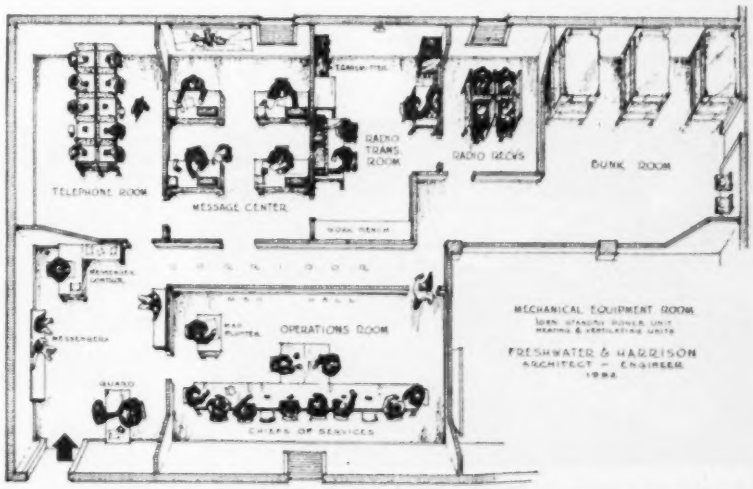
A TEMPORARY communication plan has been devised for the protection of Franklin County, Ohio, should the need occur. The participants are 40 mobile cars, belonging to radio amateurs, and 226 taxicabs with 2-way radio communications, in addition to our fire, police, and sheriff cars. A temporary Control Center has been established from which all of these vehicles can be contacted for civil-defense emergencies.

A cab is to be stationed at each of the 101 aid stations and mobile cars which back up fire equipment. These cabs and amateurs' cars also can be used to establish communications for the various transportation assembly areas.

The main Control Center is now going into operation. The temporary controls will be moved into the permanent center. Radio equipment has been ordered from the General Electric Company. The telephone system will be installed by the Ohio Bell Telephone Company. The drawing shows how our Control Center will be set up.

How we automatically sound 56 air-raid sirens throughout the county by a novel combination of radio and wirelines, was announced in THE AMERICAN CITY for December 1952. Special electronic tone and radio equipment developed by the General Electric Company, at Syracuse, N. Y., makes the system work. Control of the system is maintained in the Columbus Fire Department radio headquarters, where an operator is on duty at all times. He can control the 56 air-raid sirens simultaneously by two pushbuttons, one for the alert and one for the all-clear.

GEORGE F. ARNOLD
*Executive Administrator*
*Columbus and Franklin County*
*Civil Defense*
*Columbus, Ohio*




**This is the set-up of a control center for Franklin County, Ohio.**

# How to Finance Street Improvements

## An analysis of state and federal aid for street programs and various types of assessment plans now in use

By RAY MURPHY
*City Engineer*
*Rye, N. Y.*

ENGINEERS in the municipal field have widely divergent ideas on what materials should be used to build a street. Some like an asphalt base; some like soil cement, and some like concrete. But there is one ingredient that all engineers agree is necessary before a street-construction project can be successful—that ingredient is money.

The public pays good money for a good highway system, and the public ought to get it. But I doubt that the public realizes how much traffic urban streets have to carry, and how little of the motor-vehicle-tax money is spent to support these streets.

### Half the Traffic on Urban Streets

The United States Bureau of Public Roads, in various traffic studies, has discovered that the urban portions of our national highway systems carry more than half the motor-vehicle traffic. Yet the money raised by this motor-vehicle traffic, through gasoline taxes, license fees, and similar imposts, averages roughly 10%.

The proper amount of tax money that a city should receive in view of the tremendous amount of traffic its streets must carry is subject to some conjecture. Obviously a city has no right to the entire 50% since its street system amounts to no more than 10% of the nation's entire highway network. Nevertheless this 10% represents some of the most expensive and difficult construction in the entire highway system. The engineering fraternity and the public also have a habit of looking romantically at the construction of rural highways when they basically are little more than a large-scale mass-production operation. In contrast, city-street construction requires attention to many intricate details and the adaptation of the engineering design to factors that the engineer of rural-highway construction scarcely realizes exists.

Nevertheless, if the city should get about 25% of the tax dollar raised from the motorists, then the city engineer would have the means to overcome in orderly fashion many of the distressing traffic problems that cause difficulty to the nation's highway system.

This figure seems to be the goal that cities strive for. A study of the disposition of state imposts on highway users made by the Bureau of Public Roads in 1948 showed Maryland allotting 26% of these funds to urban construction; Illinois allotting 18%; Ohio, 17%; Michigan, 13%; and Oregon and Washington, 10%. Twenty-one states made no allotment whatsoever.

Therefore, the first step in financing street construction is to see that the cities get a fair share of this tax money. They will not be given a grant; in contrast, they will only be given back the money they rightfully have earned for use of their street system.

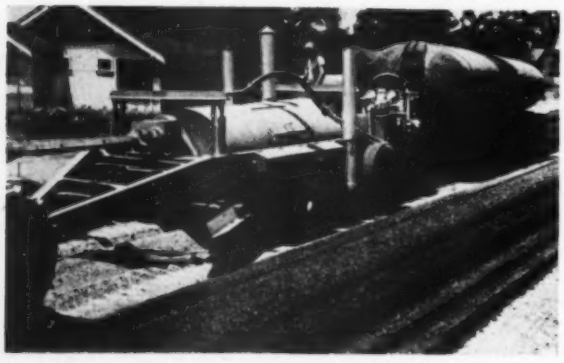
Many municipalities want to know how to finance expressways. These are big expensive projects, almost always too large to be financed out of a municipal budget. In some states (Texas is one example) the state will build the expressway if the city will supply the right-of-way. This is a heavy undertaking since these expressways often will go through parts of town where land values are high. And when they go through, they take out of the tax rolls property that has produced good tax revenue. A city is fortunate if the expressway can be put through a blighted area where tax delinquencies are high and the tax revenue is not great.

### Tripartite Agreement

Detroit is building an expressway system by making a tri-party agreement between the city, the county, and the state. Under this agreement, Detroit pledged $1,500,000 annually, Wayne County a like amount, and the State Highway Department, $3,000,000. These funds are being pooled to match federal appropriations for the work. Thus the city, the county, the state, and the federal government all recognize their responsibilities in this important work.

To pay for this, the city, the county, and the state are using a type of revenue bond, perhaps more properly described as a "dedicated tax bond" issue. These bonds are guaranteed by pledge of a portion of the state's highway revenues from gas taxes and motor-vehicle license fees. Special legislation was needed in order to authorize them.

However, these are not the problems that a city engineer must deal



**In order to produce a paving surface that is economical, Long Beach, Calif., uses this Wood mixer.**

**Often cities can build streets of good quality using a soil-cement base, as in Columbus, Ga.**

with every day. One must build and maintain streets not with the money he would like to have or ought to have, but with the money he gets. One can reasonably expect a certain amount of money out of the general budget each year to maintain streets. The problem is one of deciding how to spend it.

### Pay-As-You-Go vs. Bond Issues

One school of thought says to build by a pay-as-you-go program. In other words, build a little bit here, a little bit there, and build as economically as you can to stretch the street dollar over as many streets as possible. But there is another school of thought that says to bond yourself for the amount that this street-maintenance appropriation will allow, and then rebuild your streets in first-class condition so that they won't need maintenance for the next 20 years. Milton Rosen, Commissioner of Finance, at St. Paul, Minn., urges this latter program. He states that a 20-year pay-as-you-go program will not cost any less than a program built around a 20-year bond issue, and that the latter program will mean rebuilding streets so that they will give you a lot better service.

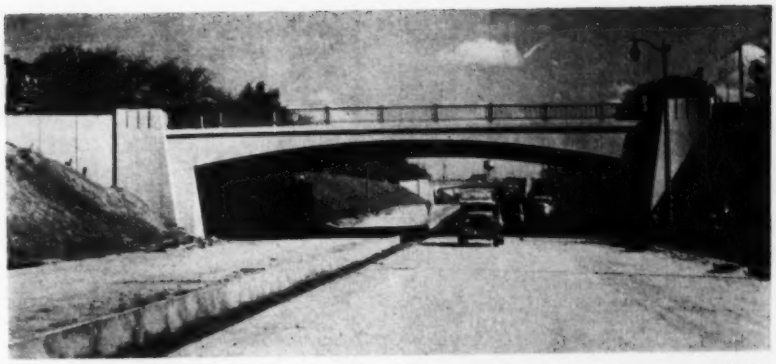
The reason for this is the favorable interest rate that these bond issues command. Since municipal bonds are tax exempt, they find buyers who are satisfied with interest rates of 2% or less. An individual with a $10,000 taxable income would have to own taxable corporation bonds yielding 3.2% to do as well as nontaxable municipal bonds. If he were in the $75,000 bracket, his tax-free return could be equaled only in a taxable investment yielding about 10½%.

This, of course, means that to the engineer, financial reasons dictate the adoption of a program designed around the so-called high-type pavement reconstruction. The high type, of course, in most cases means concrete pavement instead of the flexible-base bituminous type. In some states, notably those in the Midwest, cities have been forced into the use of portland-cement-concrete construction because of state-imposed legal restrictions.

### Local Street Financing

In early days, the abutting property owners paid for street improvements by direct assessments, but as time has gone on, we have noted a trend towards spreading the assessments among those who benefit by the paving. Certainly those whose homes abut the property benefit the most, but their neighbors whose homes do not abut the improved street benefit also and should be willing to pay a share. Then also we find a trend toward the city at large assuming the cost of paving street intersections.

Oklahoma City makes assessments for street paving by assessing against the entire city block abutting the improved street. The first third of the block pays 50%; the next third, 30%, and the final third, 20%. The cost of paving an intersection is spread over a quarter of each block abutting the intersection to be paved.



**Expressway construction in Detroit, Mich., is financed by a city-county-state matching of federal funds.**

### Adjustment for Corner Lots

Those corner lots with the long side fronting onto the street to be improved find themselves often with excessively heavy assessments. To eliminate this high cost, Detroit has arranged its pavement-assessment program so that the property with the long dimension of the lot will pay only 35% of the paving cost. Of the remainder, 50% will be paid by the city and 15% by the lots that are situated within a half-block of the street. Assessments are payable in four annual installments with interest at 6%. Paving costs for street and alley intersections are borne by the city.

Toledo also takes into account the plight of the "side frontage" lot. Under its plan, the corner-lot owner pays his share for the pavement on the front street where the narrowest portion of the lot faces, and pays only one-third for the side street adjacent to the long portion of his lot. The remaining two-thirds of the side-street paving is met out of city funds derived from the income tax, the gasoline tax, and the auto-tag tax. The city in addition pays the cost of paving the intersections.

The city also has an interesting repaving policy. If the property never has been assessed for paving, the city requires that the property owner pay 98% of the paving cost, less the cost of intersections. The city pays the remaining 2%, plus the cost of intersection paving. If the property has once been assessed, the repaving charge is fixed at 50% for the property owner and 50% to be paid by the city.

In Columbus, Nebr., if 51% of the property owners petition for a paving district, one is established with a price per front foot that those in the district are willing to pay. After a 20-day remonstrance period, if 51% object to the project, the work is not undertaken. In Mishawaka, Ind., property owners sign an order authorizing pavement work. On the order is an estimate of the cost. Owners agree to pay in 12 months. Only 6% have been reported delinquent. Pontiac, Mich., uses special assessments to pay for improvements that normally might be considered a maintenance item—recapping an old concrete base with asphalt.

### Bond Issue at Rye, N. Y.

In Rye, N. Y., we follow the general practice of building major improvements by bond issue, and maintaining them out of the general tax fund. Last year we completed a substantial program of sewers, drains, paving, and building recreational areas, all financed by a 20-year bond issue.

New York State law permits us to issue bonds covering sewers and storm drains for 30-year financing. If we purchase land, we can pay for it by bonds, also financed over 30 years. Pavement, however, must be financed by bonds payable in 10 years. Recreational facilities and park embellishment that goes on land have a 10-year limitation on the bonds. Our bond attorney made a weighted average of the entire project that we contemplated and calculated that a 20-year bond issue would handle the entire improvement program.

This year we have nothing to do to our streets except maintenance. Our practice is to reseal the streets, buying the asphalt in place on the street surface and covering it with aggregate spread by our own forces. For this we have found Temple spreaders do work very well.

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By RICHARD E. DeVESTY

Director Laurence J. O'Toole (right) and Deputy Director Bernard F. Hillenbrand, of the official Municipal Research Bureau of Syracuse.

Richard A. Atkins (center), director of the Syracuse Governmental Research Bureau, talks over municipal problems with Assistant Director John P. Coleman (left) and Norman H. Baker, former SGRB fact-finder and now research head for the New Jersey Taxpayers' Association.

# Official and Unofficial Research Bureaus Serve the City of Syracuse

THE CITY of Syracuse, N. Y., has the benefit of the cooperative services of two efficient research bureaus—the citizens' organization, the Syracuse Governmental Research Bureau, Inc., and the Municipal Research Bureau, an official agency established by charter in 1935 and reactivated early in 1952. The city bureau, with a budget of about $18,000, operates strictly at the municipal level, while the citizens' unit may branch out to a study of county governmental operations.

## The Official Bureau

The main cog in the official bureau is Laurence J. O'Toole, ex-newsman and political writer.

Taking over the $8,000-a-year director's post about a year ago, Mr. O'Toole fell heir to a wide variety of problems ranging from fluoridation to a new salary plan. On these matters the Bureau is a fact-finding agency which decides no policies, but offers help to any city department head, councilman, or other official without regard to political affiliation.

Second in command is Deputy Director Bernard F. Hillenbrand, 27, a public-administration specialist with two college degrees won through a study of government. Both directors are Purple Heart veterans. They are assisted by two secretaries, Miss Mary A. Hickey and Mrs. Nancy Doelling.

Here's a brief run-down of the major projects the fact-finders completed in a year:

1. Compilation of all general ordinances since 1848. Mr. Hillenbrand examined 104 years of legislation, altogether, then filed a 262-page report which city department heads are now examining. Eventually, the old, out-of-date laws will be discarded. The local bar committee helped out with this job.

2. Compilation and publication of up-to-date copies of the city charter. There were only six complete copies in existence last year. The bureau will issue annual charter supplements, too.

3. Evolved three basic plans for reduction of working hours for police and firemen.

4. Screened available information on fluoridation and compiled a 16-page report on pros and cons of the controversial issue. This report has been published by the National Institute of Municipal Law Officers in that group's fluoridation study.

5. Assisted various activities of Council committees. For instance, they studied the fire-fighting situation at the city's Hancock Airport and filed recommendations for added equipment and manpower with the Council's Airport Committee. For another councilman they dug up comparative figures on what Syracuse and other cities are charging out-of-town water customers.

6. They are currently involved in a study of landfill *vs.* incinerator treatment for rubbish. Health and DPW commissioners are standing on opposite sides of this thorny issue.

7. Working with the state civil service office, they established a new salary schedule and reclassification system for 3,000 city jobs.

8. They are currently working on a vacation plan so all employees will get equitable treatment.

9. Through examination of sewer practices, they found that the city is losing money on installations because special assessments on residents are only half of the costs. The potential savings in the bureau's sewer-rate recommendations amounts to about $100,000 a year.

10. They also checked salt treatment for streets for its corrosive effect on automobiles. This report has been in wide demand.

11. To aid liaison between councilmen and departments, they inaugurated a series of tours for councilmen after each meeting to view facilities of a different department.

12. A comprehensive report of pay of school-crossing guards led to an increase in pay from $550 to $750 and improved working conditions for the 45 women on the staff. (Syracuse is one of a very few cities which give police powers to the guards.)

13. They compile the annual capital improvements report, reviewing $6,000,000 worth of ideas for less than $2,000,000 in appropriations.

## The Future of the Research Bureau

The future of a Syracuse city-research bureau seems assured with leading elements of both political parties convinced of its value.

Mayor Thomas J. Corcoran comments: "The bureau has been of inestimable value to the administration by (1) taking over a great deal of detail work; (2) handling the multitudinous inquiries about city services; and (3) supplying facts and

background for many major decisions made by the administration."

On the other side of the political fence, GOP Council President J. Ward Bixby adds: "They've done a very commendable job. It has definitely pointed out the need for such a bureau."

### The Citizens' Organization

Organized in 1948, the Syracuse Governmental Research Bureau is headed by Director Richard A. Atkins, former chief of the Boston bureau.

Dr. Atkins, who earned his Ph.D. at Harvard University, is aided by Assistant Director John P. Coleman, a Michigan State College graduate and former "intern" with the New York State Department of Audit and Control.

Sarah O. Kelley, fact-finder with one of the city's former official research bureaus, is research assistant with SGRB, with Jane T. Kinney, secretary, rounding out the staff of four.

SGRB was born at a crucial time in city administration. Syracuse found itself squarely against the limitations of its constitutional taxing power and the administration espoused controversial permissive taxes (which were legislated by the state in 1947).

SGRB and the official city-research unit work together whenever possible; they keep each other informed of research in progress.

When officials needed a plan last year for revising fire and police working hours, the younger, official bureau continued and completed study which was started by SGRB.

Among other things, SGRB recently has:

1. Promoted a program for executive management of the $18,000,000 Onondaga County government.
2. Furnished facts for effective local opposition to city-school fiscal separation, and cited hazards of establishing a new taxing and borrowing unit in the city. School and city officials corroborated this stand and fought any such change in state law.
3. Made a special report on increase in county debt with recommendations for contributing to tax relief through debt control.
4. Started action to cure the sales-tax law of a bad feature which discriminates against city residents doing business outside the city. This involves an amendment to state law.
5. Filed a brief with the state pollution-control board citing that upward revision of purity classifications of nearby Onondaga Lake "could lead to such great expense as to violate the standards of reasonableness" laid down in state law.
6. Prepared financial schedule urging the city to continue "pay-as-you-go" policies on proposed new school construction.
7. Prepared a report on local-government organization for the fast-growing suburban community of Dewitt.

In a recently released, three-year report, SGRB also cited its continual efforts to review city and county costs with the idea of preserving sound municipal economy; a management survey to get adequate fire protection at reasonable cost; an engineering study to test public works costs and methods; leadership in a successful campaign to eliminate business gross receipts tax, and many other projects.

The Syracuse Governmental Research Bureau is financed by local business and industry and guided by a 38-man board of directors, plus four officers.

# Clinton, Iowa, Mechanizes Part of Payroll and Appropriations Work

By E. LESLIE CRABB
*City Clerk-Auditor*
*Clinton, Iowa*

THE City of Clinton, Iowa, (population 30,000), has mechanized payroll and appropriations accounting. This is not a simplification except in substituting typing for handwriting, for cities in Iowa are required, to a large degree, to use identical systems and forms regardless of their population and volume of business. The system we use was worked out with the help of our auditors and representatives of the National Cash Register Company. Its legibility and accuracy have contributed to greater ease in making the audit.

### Writing Paycheck Establishes Payroll Accuracy

In the payroll work, a Payroll Journal (in a carbon jacket) is inserted in the machine which holds this sheet firmly as the Employee's Earnings Record and the Payroll Warrant or check are inserted. As each Record and Warrant is inserted, the carriage up-spaces one space for the next entry. These two forms are placed side by side and aligned for a straight-line operation from the date at the left to the total amount at the extreme right of the check and Journal. The machine-produced totals should agree with the footings on the payroll sheet—and mean that the payroll has been correctly written.

Quarterly reports and remittances to the Collector of Internal Revenue for withholding tax, and to the Iowa Old Age and Security Insurance System on "Pensions" are checked and verified by adding the appropriate columns. In contrast to the present method, we formerly wrote the warrants in longhand, posted them by hand to the Earnings Record, and had no record comparable to the Journal.

In the appropriations posting, there are 13 operational funds and, presently, 140 subaccounts. This is a good system for accounting for some particular expense—such as the recent city expense caused by flooding from the Mississippi River. In setting up the budget we retain the recurring items on the ledger sheets of the year ended, omit the special expenditures, and add those anticipated for the coming year.

The ledger sheet (shown) is a simple record of actual payments and the diminishing balance, and does not keep track of purchase orders and encumbrances. The first figure on the sheet is the amount of the appropriation. It is placed under "Balance on Hand." As expenditures are posted, their amounts are deducted from the last balance, and a new balance created. The machine makes these deductions and accumulates them for subtraction from the control. Under the present system the classification of expenditures is automatic.

CITY OF CLINTON, IOWA

ACCOUNT NO._____

FUND_____

SHEET NO._____

| DESCRIPTION | WARRANT NUMBER | DATE PAID | AMOUNT OF WARRANT | DATE | BALANCE ON HAND |
|---|---|---|---|---|---|
| | | | | | |

Simple appropriation-ledger form used by the City of Clinton, Iowa.

# For Scientific Assessment of Residential Buildings

By VIRGIL G. BAKER
*Real Estate Editor*
*St. Louis Post Dispatch*
*St. Louis, Mo.*

"Now—any recent improvements?"

ALL OVER THE NATION now, reassessment of properties is in order, because of the new level of the nation's economy and because of gross inequities in the assessment rolls that have persisted almost everywhere for years.

While in many places they are talking about it and calling for special money with which to accomplish it, St. Louis is one place where a great deal actually is being done—without any increase in the assessor's force and without extra appropriation. Moreover, it is not being done on a political basis, for City Assessor Joseph P. Sestric, although a political appointee, thinks the office should be a civil-service institution, and has men of more than one political following on his staff.

A manual has been worked out on a scientific basis by Mr. Sestric to produce uniformity of assessment, as nearly as possible, of residential buildings. It does not involve the appraisal of land (that's still another factor to be reckoned with).

### How It Works

The 144-page manual, used in conjunction with mimeographed worksheets in the field, provides for assessment valuation by the summation (adding up) of various value factors pertaining to a given property; the resulting sum being a weighted—that is to say, modified or adjusted — reproduction cost. The procedure is sufficiently basic so that by changing the production-cost basis* it can be utilized for many years and make possible a "continuing inventory" type of property valuation for the city.

A case study of a property will serve to indicate how the manual is used. A property will fall into one of four basic classes: (a) buildings built under architectural supervision, of the finest materials available, and by skilled craftsmen; (b) buildings built from good architectural plans with good materials, good craftsmanship, and good supervision by a contractor; (c) buildings built of average materials and workmanship and under supervision of a contractor; (d) buildings built of fair or substandard materials and workmanship with lack of proper designing. Under that broad classification it will fall into a "type."

One "type" common in St. Louis is a one-story brick, with attic. On the field worksheet the appraiser will mark city block and lot number, street address, the type, whether it is rented or owner-operated, and class, and then begin the calculation according to 21 lines of "value factors." He determines a particular building has 1,200 square feet of area, is a class "C" structure, one-story brick with attic. Basic reproduction cost of such a structure he will find already worked out on a page of the manual, so marks down the base figure $6,230. Next he checks off: attic roof, dormers (if there were any dormers there'd be a value factor to add at this point), basement, heat. All these, except the dormer, if any, are included in the base figure, so nothing more is added yet.

### But He Is Not Done Yet

Then comes: front porch (140 square feet, open type), which adds $192; and a rear porch (72 square feet, frame type), $136. If there were a sun parlor, additional apartments, additional finished rooms (as in an attic area) these all would add to the total, but in this case suppose there are none. There is, however, a one-car frame garage. This adds $375 to the total, and the assessor comes up with a total replacement cost (according to the manual) of $6,933. But he is not done yet.

Next, how sound is it? Suppose as of January 1, 1953, it was 16 years old. Here a depreciation table comes into play. By the table a property will be depreciated from the total reproduction cost at the rate of 2% a year over a period of 60 years.† Thus a 16-year-old property will be depreciated to 72.4%. That cuts the value of this property to $5,019.

But suppose it is in a neighborhood of much older buildings, a neighborhood 40 years old and showing signs of deterioration. This cuts the value of the property still more, and a conversion table in the manual shows the assessor at a glance that this depreciation factor for a 16-year-old building in a 40-year-old neighborhood calls for a deduction of 14%. This cuts the value to $4,316.

Then the condition of the building itself enters in. Suppose in this case it appeared to be in only fair condition for its age. By the manual 5% of the reproduction cost (5% of $6,933, or $346) would be deducted, leaving as the value upon which taxes would be based $3,970. If the house were in "excellent" condition for its age, 10% of the reproduction cost would be added to the depreciation value. If in "good" condition 5% would be added. If normal, the depreciation figure would stand unchanged. If it were in poor condition, 10% would be deducted.

Thus, it will be seen, the assessors using the manual actually make a calculation of the property value, instead of guessing, applying the same yardstick to all properties. As the property differed from another, so its value would differ, but the basis for the difference would remain a constant factor.

* Currently, the United States Bureau of Labor Statistics figure with a 1942 base is used.

† At age 60 the property would be considered to have a 30% soundness and would not be further depreciated so long as it stood and remained on the tax books.

# Only Prisoners Dislike New County Jail

A KEY can be thrown into a cell of the recently completed Berrien County Jail at St. Joseph, Mich., yet escape is impossible. Prison population, second highest in the state, has been reduced from a high of 217 in 1951 to a 1952 high of 130. Prison officials attribute this decline to the jail's new security features and lack of personal comfort.

Security against escape, riots, and danger to guards was the primary consideration of the Detroit architectural and engineering firm of Smith, Hinchman & Grylls, Inc. The cell block is divided into sections of five cells each, with separate sections for women prisoners, and for misdemeanor, felony, and mental cases. With a steel door separating each section, a small group of prisoners can be controlled independently of prisoners in other sections.

The prison doors to the individual cells and day rooms are opened and closed by a concealed mechanism, located in the guards' corridor outside the cell-block area. Doors can be opened or closed either singly or in groups. This permits an individual prisoner to be released from his cell without the danger of a possible riot by the onrushing of a number of dangerous prisoners. When the prisoner is permitted to leave his cell there are two or more steel doors between him and the outside of the cell block.

### Feeding Controlled

Food is passed to the prisoners without the danger of physical contact. Prisoners may be released from the cells one at a time to receive their meals from the outer corridor or may be served in their cells.

Cell fronts and doors are constructed of tool- and heat-resisting steel bars, made especially for prison use. Bars are laminated and offer high resistance to cutting tools and annealing heat. Ventilating grills and light-fixture frames are made of tool-resisting steel plate.

### Follow Routine

Incoming prisoners are brought into the basement of the building. Here they are booked, fingerprinted, and photographed. Bull-pen cells, in the same room, lodge the prisoners until their cases are handled by the courts. Those sentenced to jail are assigned to the section designated for the nature of their crimes.

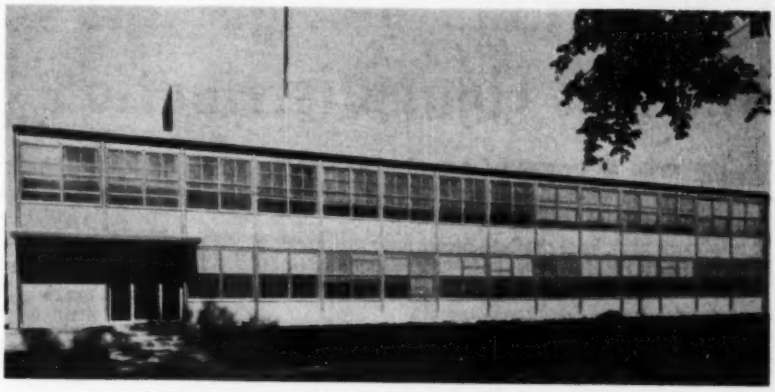
The utmost in sanitation and the minimum in building maintenance are obtained by the extensive use of Claycraft glazed structural tile in all the main corridors, stairways, and exterior walls of the cell block—eliminating any necessity for painting in the future. Satinall rubber-emulsion paint on the concrete walls of the cells and dormitories permits easy cleaning in these areas.

The new jail, the first unit of a master plan, was built to accommodate 250 prisoners. Tool- and heat-resisting steel bars, ventilating grilles, and light fixture frames were made by the Van Dorn Iron Works, of Cleveland, Ohio.

### Ideal Result

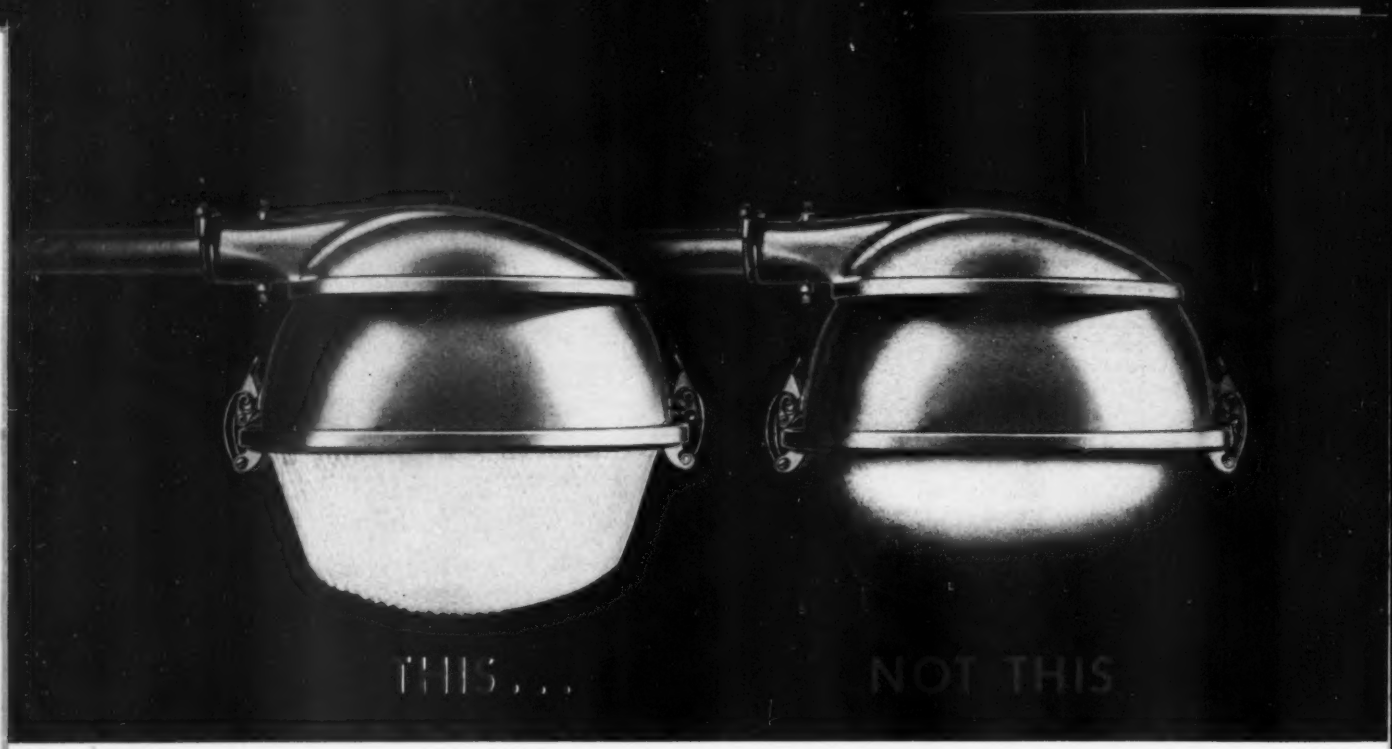
Occupied since June 1952, the jail has received enthusiastic comments from visiting law-enforcement officials. According to Sheriff Erwin H. Kubath, "The inmates feel it is more a state prison than a county jail. Word has spread among habitual law breakers about the new security features and lack of personal comfort. As a result, the number of prisoners usually in the county jail at this time of year has noticeably declined."

**Cell doors operated from a panel separated by two barred corridors from the nearest prisoner, reduced guard requirements from one for each floor to one guard for the entire jail.**



**A dormitory for prisoners charged with lesser crimes.**

**Administration section of the Berrien County Jail, at St. Joseph, Mich., where the control features discourage escapes and riots.**




# L-M "Ovalite" Design Cuts Glare, Provides Uniform Light Distribution On The Street

The two major requirements for good high-intensity lighting in business and traffic areas are:

1. minimum glare from the light source;
2. uniform lighting on the street surface.

Seen against a dark background, every lighting unit has some glare. The problem is to reduce the glare to a minimum. Glare obscures the roadway and makes it difficult to see pedestrians or unlighted objects in the street.

The L-M Ovalite is so designed that glare is reduced, while at the same time light is distributed more evenly on the street surface. Here's how we do it:

**The mercury vapor lamp** is placed so that the light center is about 2½ inches above the bottom edge of the reflector. Thus, when you are driving down the street, you don't look directly at the lamp.

**The reflector** is so designed that it distributes the light evenly on the glassware, so that no one area receives a majority of the light.

**Vertical prisms** on the inside of the glass refractor raise the angle of the light emitted from the refractor, directing it to give uniform surface brightness on the glassware, and at the same time distributing it evenly over the street area.

The result, so far as glare is concerned, is seen by comparison of the two photographs at the top of the page. In the left-hand unit, the Ovalite, light is distributed evenly from all parts of the glassware. The right-hand unit, which does not have the same efficient optical system, has a hot spot along the top edge of the glassware, which causes glare and uneven light distribution.

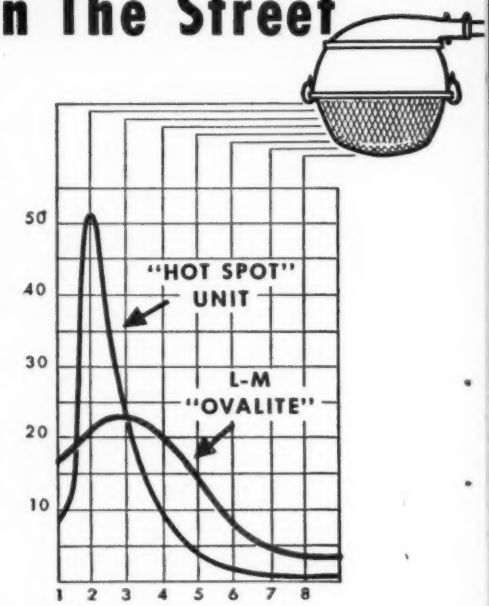
**With its freedom from glare** and its uniform distribution, the Ovalite gives greater safety and more efficient use of the light. Its optical system provides the wide distribution needed for business streets, shopping areas, and boulevards.

The Ovalite has many other good features—asbestos-covered internal wiring, strong construction, a double-hinge latch so you can swing the glassware down from either side. That makes servicing quick, easy, and safer.

### Get The Whole Story

Ask the L-M Field Engineer for the "Ovalite" Bulletin—or write Line Material Co., Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

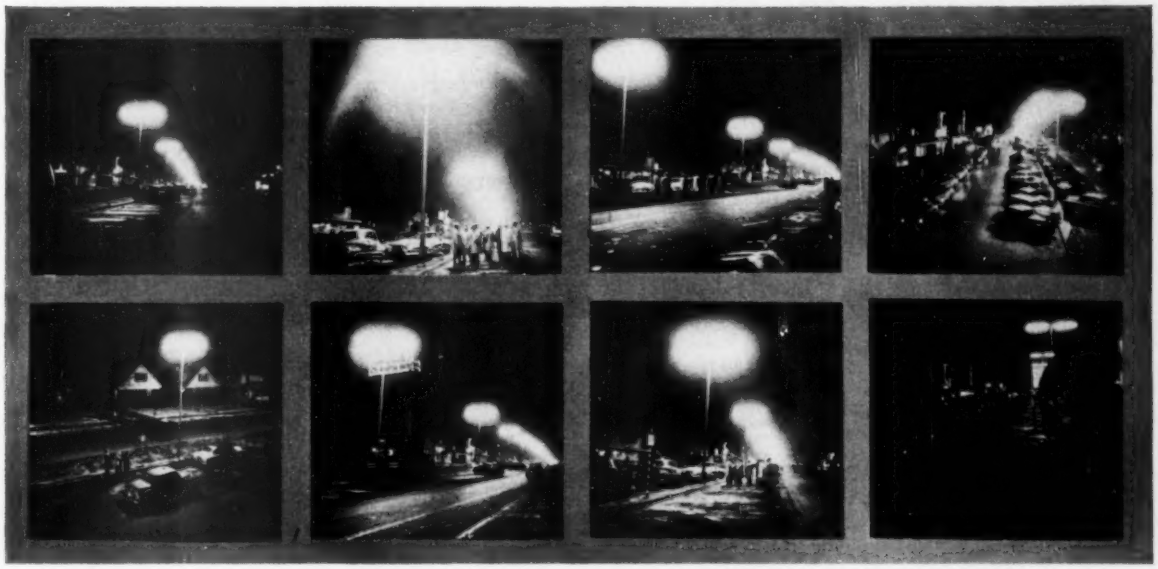
**LINE MATERIAL**
*Street Lighting*




**Tests Demonstrate Ovalite's* Uniform Brightness Distribution**

To determine the relative brightness distribution of the "Ovalite" and a "hot spot" luminaire, measurements were made of the brightness of successive strips of the surface of each luminaire. Readings were taken in the main beam of both luminaires. The chart above shows that the brightness of the "Ovalite" is much more even, while the other luminaire peaks up, especially near the top of the glassware, which accounts for the hot spot seen in the right-hand picture at the top of the page. 121

*"*Ovalite*" *is a Line Material Company trademark.*



**Eight night views of the Oakwood, Ohio, street-lighting system.**

# Spectacular Fluorescents Attract Business

***The merchants of Oakwood, Ohio, were willing to facilitate the flow of traffic at night, but they also wanted more customers***

By A. B. BERMAN
*City Manager*
*Oakwood, Ohio*

OAKWOOD (Montgomery County) Ohio, which is adjacent on the south to the City of Dayton, like many other small communities faced two major problems—increased traffic and the attraction of out-of-town shopping areas. To help remedy these two municipal problems simultaneously, Oakwood officials made plans to inject the time-tested medicine of good street lights. Oakwood merchants felt that something more spectacular than conventional luminaires was needed. Ordinary street lights, they argued, could not offset the tremendous "shopping magnetism" of the business districts in nearby big-city areas and other large communities.

The Oakwood Police Department, too, wanted something more than standard street lights. Far Hills Avenue, the central business street which has been relighted, as illustrated in the March 1953 issue of THE AMERICAN CITY, is part of State Route 48. Added to this north-south Dayton-Cincinnati through traffic, there is a 400-car parallel parking zone along the center island, regularly scheduled trackless trolleys, and, of course, local traffic. Thus, Oakwood's nighttime traffic is extraordinarily active for a community of only 10,000. With this in mind, the Police Department concluded that the new street lights must provide a higher degree of safety than would be provided by conventional fixtures.

It was the two problems of traffic safety and night shopping that led the city to select fluorescent luminaires. The 50 General Electric units are twin-mounted at a height of 30 feet on Union Metal steel poles, which

**A General Electric Form 206 luminaire in the assembly jig. The housing will contain two pairs of 6-foot fluorescent tubes separated by a curved metal reflector. The two-part molded Plexiglas shield (only one part is shown) protects the unit from dirt and damage.**

# "Look what they've done to Main Street!"

IT's the same old street, Johnny. But those new steel poles certainly do make a difference, don't they? They give our town an up-to-date, progressive look. And they make us feel a little bit proud, too, because when you get right down to it, a lot of the folks in our community are responsible for those new poles being there.

The city managers know that the first things a business looks for when considering a new location are signs of a town's progressiveness. Well, those trim steel poles lining our streets show that the town is alive and modern.

Then there's the police chief. He said if he had his way, *every* pole would be a steel pole. The old-type poles were visual obstructions—they were too wide and there were too many of them. Steel poles are stronger and can be spaced at much wider intervals.

The women's clubs contributed, too, bless 'em. With their city beautification drives, they did a lot toward increasing civic pride, and they were mighty pleased when these new steel standards were put in.

The city treasurer was happy, too, because steel poles are economical. They go farther because they can be spaced farther apart. We don't need nearly as many steel poles as we did wood poles, and they're doing the same job. They were easy to rig and erect, too, with a minimum of man-power, and except for a paint job now and then, they require no maintenance.

NATIONAL TUBE DIVISION
UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

**U·S·S NATIONAL *Tubular* STEEL POLES**

USS

UNITED STATES STEEL

are spaced at 95 feet along the 3-foot-wide center median strip.

They are ideally suited to Oakwood's heavy traffic. On the basis of "the *larger-the-apparent-light* source, the *less-the-glare*," these 6-foot-long luminaires with a globe area 4 to 5 times that of equivalent filament or mercury fixtures, produce the extreme in both visibility and comfort.

A second safety feature results from the reflective quality of fluorescent street lights on wet pavements. After a rainstorm, streets acquire a mirror-like surface, and the light from conventional luminaires may be dangerously reflected into the motorist's eyes. At the same time, areas of the street become so dark that a motorist has difficulty seeing pedestrians. This condition could be especially hazardous in Oakwood due to the high degree of nighttime traffic. Our fluorescent units — with their large globe areas — are reflected as broad bands, providing a relatively wide and complete coverage of the roadway, on wet as well as on dry pavements.

The third safety feature of the Oakwood installation is unique even when compared to other fluorescent installations. Contrary to conventional fluorescents, the new units actually increase their light output during cold weather. Consequently, during windy winter nights when increased traffic safety is desirable, there will be more light on the street.

Local merchants as well as the city's traffic officials are pleased with the new fixtures. Not only is the installation unusual enough to stimulate night shopping by local residents, but it is predicted that the tremendous publicity will attract out-of-town shoppers as well. Oakwood merchants will be encouraged to increase promotional programs, and also continue development of the Far Hills Avenue Shopping District. These would compensate the city through higher real-estate valuations and attendant tax increase.

# White Mercuries for Downtown Streets

By E. W. BEGGS
*Lamp Division*
*Westinghouse Electric Corporation*
*Bloomfield, N. J.*

THE most important new light source since the birth of the fluorescent tube was the creation by Westinghouse in 1950 of the fluorescent-mercury lamp. This mercury-vapor type of light source produces white light instead of blue-green, and relieves mercury lighting of its historic color limitation.

It is also the most economical and convenient light source for mass white light ever devised, which is why it was developed. Its features are higher efficiency, higher power, and longer economic and useful life. The 1,000-watt mercury lamp has an efficiency of 55 lumens per watt and has an output of 55,000 lumens as compared to 21,800 lumens for a 1,000-watt incandescent. The useful economic life of modern mercury lamps is many times that of comparable incandescent types. Now, with the advent of the newest development—the fluorescent-mercury lamp —the mercury-type lamp is expected to be used extensively for lighting downtown districts.

### Availability

The 400-watt has always been the most popular size of mercury lamp so it was the first fluorescent-mercury type developed. This lamp (J-H1) now has an average useful life in excess of 6,000 hours. Its initial light output is 18,000 lumens which is not far below that of a 1,000-watt incandescent lamp at 21,800 lumens. It operates on standard auxiliaries and can be substituted for straight mercury lamps in any fixture that permits its slightly larger bulb to be seated in the socket.

When replacing the older 400-watt straight mercury (A-H1) with the fluorescent-mercury, the color of the light is improved and the light output is increased 20%. When substituting the fluorescent-mercury for the newer quartz-type straight mercury lamp (E-H1) there is actually a decrease of about 5.3% in light output but the glare factor is decreased and the light is a golden-white color.

There are many installations where incandescent lamps are being used in combination with mercury lamps to get the desired color rendition. When these installations are changed to straight fluorescent-mercury, the total number of lamp replacements required per year is drastically reduced. This is because the life of the fluorescent-mercury is several times that of the incandescent lamp it is used to replace. For example, in a combination incandescent-mercury installation of 500 750-watt incandescent and 500 400-watt mercuries, the total number of renewals for a 4,000-hour year would be 2,330 lamps. However, if an all-mercury system were used with the 400-watt J-H1 lamp throughout, only 670 lamps would have to be replaced in the same period.

In recent years, there has been a trend toward the use of the 1,000-watt straight mercury lamp (A-H12) wherever a very high output unit can be used in order to reduce lighting costs. Lamp replacement is less costly with the larger lamps since fewer fixtures have to be installed and maintained and the larger sizes are relatively cheaper and more efficient.

Fluorescent-mercury lamps are finding their greatest application in installations where color discrimination is involved and where sources of high lumen output can be used. They are being applied with great success to airport terminal buildings, auditoriums and sports arenas, parking lots, and for streets.

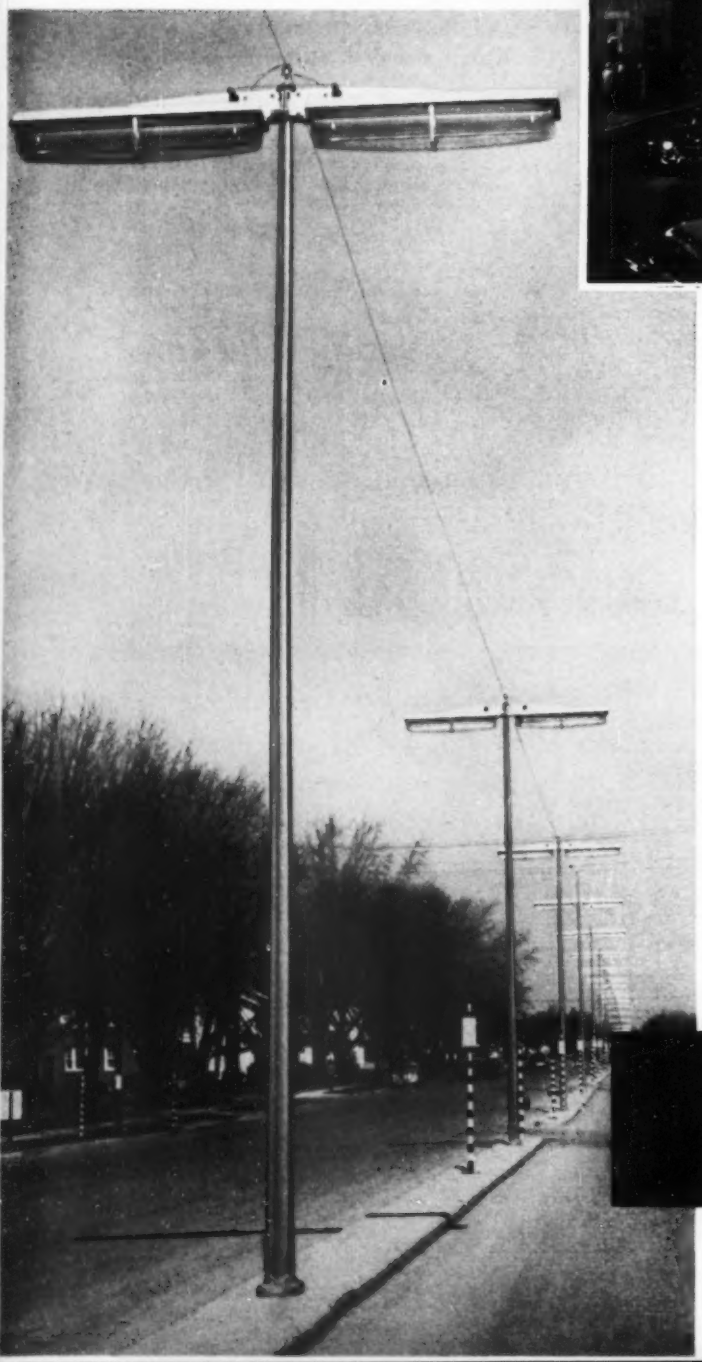
# New Jersey Turnpike Bridges

**Where the New Jersey Turnpike climbs over the Hackensack and Passaic rivers, one hundred thirty-three 10,000-lumen street lights bring safety to the heavily traveled high-speed highway. Approximately 25,000 vehicles travel over these bridges nightly. The General Electric lights, which are spaced in staggering fashion 100 feet apart and which are mounted at 30-foot heights, provide an average illumination of 0.6 foot-candles on the bridges.**

MONOTUBES TEAM UP WITH FLUORESCENTS FOR

# a new approach to modern street lighting

*30-foot, fluted steel Monotube poles, spaced at 95 feet, add to the attractive daytime appearance of Oakwood's mile-long fluorescent installation while providing dependable support for the twin luminaires.*



FLUORESCENT street lighting shows great promise as an efficient means to more adequate street illumination.

The country's largest installation to date of fluorescent luminaires is operated by the Dayton Power and Light Company on Far Hills Avenue, Oakwood, just outside of Dayton, Ohio.

Union Metal Monotubes were selected because they are ideally suited for this and all types of street lighting requirements.

Write The Union Metal Manufacturing Co., Canton 5, Ohio, for catalogs, specific data or engineering information.

**UNION METAL**

*Monotube Street Lighting Poles*

# What the MVL Ballast Is and Does

MERCURY-VAPOR LAMPS (MVL) belong to the general classification known as electrical discharge lamps, in which light is produced by the passage of an electrical current through a vapor or gas, rather than through a tungsten wire.

The fundamental advantages of the mercury-vapor light source are long lamp life and a high luminous efficiency with a high light output per unit, which reduces the required number of luminaires to a minimum for a given application.

### The Operating Characteristics

To start and operate any of the mercury-vapor lamps on a standard electrical circuit (whether series or multiple), a ballast is required. A ballast is generally described as an auxiliary device used with vapor lamps to provide proper operating characteristics. It may transform current or voltage, or limit current.

In the multiple circuit a ballast is customarily used to limit the current. These ballasts must, of course, be designed for the proper voltage and frequency of the supply with which they are to be used. Most of them use a high-reactance transformer to provide starting voltage and to limit current.

To provide for a variation from the nominal voltage of the system, each ballast may be provided with taps. For normal lumen output, wattage consumption, dependable starting, and good lamp life, the line should be connected to the tap nearest the actual line voltage (measured when all lamps and other loads on the circuit are energized). If primary voltage varies from the rated voltage of the ballast, the lamp voltage, current, wattage, and light output will vary.

In the series street-lighting circuit the current-limiting device is the constant-current transformer used to regulate the current flowing in the series circuit. A fundamental requirement is that the current in the circuit be constant at all times, so that normal lumen output is obtained from all lamps regardless of individual lamp outages or failures. This means that the voltage supply must be variable and dependent on the number and size of lamps in the circuit. To meet these requirements, a constant-current transformer of the moving-coil type is used. These are commonly called constant-current regulators.

Because the mercury lamps available do not have operating currents matching the usual regulator secondary circuits, and for other reasons discussed, it is usually necessary to use individual lamp ballasts when operating mercury-vapor lamps from a series circuit.

The transformer required for the operation of a single mercury lamp from a series circuit differs in design from the more common multiple type of ballast. The usual design is a two-winding transformer heavily insulated to insure satisfactory operation on series circuits up to 10,500 volts rating.

Series ballasts are available for the more popular lamps to operate from either 6.6-, 7.5-, or 20-ampere series circuits and can be operated on all types of moving-coil constant-current transformers.

### Series Operation Without Ballasts

A few installations of mercury-vapor lamps have been made with the lamps supplied directly from a series circuit. The principal advantage of this system is the lower initial cost due to elimination of ballast.

Several disadvantages are apparent when the operation is analyzed. Special regulators must be supplied with secondary current ratings equal to the operating current of the particular lamp to be used. Since starting current will be exactly equal to operating current, lamps will take longer to reach stable operating conditions than when used with ballasts, and under certain conditions may never reach stable operating conditions.

High-voltage sockets must be used to provide insulation for full series circuit. Film cutouts must be used to prevent socket destruction when lamps fail, since practically the entire regulator voltage will be across the failed lamp. A time-delay lockout oil switch must be used to prevent puncturing of all the cutouts by the high open-circuit voltage if a power interruption occurs and if service is restored before lamps have cooled sufficiently to restart.

●

## *Hy-Lites Over Jamestown, N. Dak.*

JAMESTOWN, N. DAK., wanted a first-class street-lighting system with minimum maintenance. The fine illumination, indicated by the photograph, is furnished by 400-watt Westinghouse mercury-vapor lamps and luminaires. The lower maintenance results from the use of 105 Hy-Lite American Concrete standards which place the lamps 29 feet in the air on 6-foot brackets.

Precast bases eliminated the need for concrete foundations. Wiring is underground and is 3-wire multiple. Portions of the lighting are turned off late at night. The city engineer is Erik D. Peterson. Max R. Hughes of Fargo, N. Dak., was consulting engineer.

**These 400-watt mercury-vapor luminaires, at Jamestown, N. Dak., are mounted 29 feet high on American Concrete standards.**

# *Put Night Time Magic in your Signs*

with the NEW PRISMO

"Rain-Proof"

# REFLECTO-KIT

"Moisture-Proofed" for Greater Efficiency!

GREATER BRILLIANCE!

By far, the best reflective material for all types of traffic signs and markers! The combination of improved plastic binder and myriads of tiny glass spheres—so fine, so evenly graded—results in powerful brilliance beyond compare. Out-shines all others, even in a downpour, because the Rainproof Reflecto-kit is chemically treated, by an exclusive Prismo process, to resist moisture!

LONGER LIFE!

Proved longest-lasting, in test after test, under all weather conditions. No dull smudging or grey marks, even after long use. The uniform sphere composition results in tighter adhesion with the strong plastic binder. A reflective surface that can't be beat for permanency!

GREATER ECONOMY!

Easy to apply, in the field or shop. No cutting or trimming waste. Will coat any type of vertical surface . . . efficiently . . . regardless of contour. Spreads evenly, in dampest weather. Initial cost is low and no maintenance is required . . . for years!

# PRISMO

SAFETY CORPORATION

HUNTINGDON • PENNSYLVANIA

# Make Traffic Signals Move Traffic

By KARL A. BEVINS
*Traffic Engineer*
*Atlanta, Ga.*

ATLANTA, GA., like every large city, needs many improvements in its traffic-signal system. Atlanta is making the improvements with funds for the purchase of traffic-signal equipment increased from the $20,000-to-$30,000 range to the $140,000-to-$200,000 range. In the two years to date, we have concentrated on the interconnection of signals and the installation of modern timing equipment. Only our highest accident locations have received additional signal heads.

### What Traffic Signals Can Do

Virtually the only function of a traffic signal is to assign the right-of-way. We install signals almost entirely for the purpose of assigning the right-of-way, though if used wisely, traffic signals will:

- Provide for orderly movement of traffic.
- Reduce the frequency of certain types of accidents, but not rear-end collisions. (They tend to increase rear-end collisions, rather than decrease them.) As another example, an ordinary two-phase signal will have very little beneficial effect on a head-on collision problem caused by traffic turning left at an intersection. Special provision must be made in the signal sequence if accidents resulting from the left-turn problem are to be reduced.
- Provide progressive movement —that is, allow traffic to move smoothly along a main street with very little stopping.
- Control speed, except in the case of an isolated traffic signal. An isolated signal frequently produces very beneficial results in the reduction of accidents by assigning right-of-way and increasing driver alertness. Two signals a block apart will not effectively control speeds, but three signals placed at intervals along a highway may control speeds. However, if they do control speeds effectively, the chances are that they will not allow heavy volumes of traffic to move efficiently. Of course, there is the speed-control type of signal which is vehicle-actuated and this particular piece of equipment will, when properly applied, control speed.
- Interrupt heavy traffic at intervals to permit crossings along a main street.
- Reduce the number of police officers needed to direct traffic at simple two-phase intersections. A signal will operate in all types of weather, rain or shine, snow or sleet. A system of modern traffic signals provides much better coordination for progressive movement than is possible with the most highly trained squad of traffic officers. Mechanical signals eliminate certain "human" factors—for example, the tendency of an officer to slow down after 10 or 15 minutes of strenuous traffic direction. Signals neither wait for stragglers nor wave them on through the intersection, delaying traffic on the cross street.

### Price of Incorrect Application

Properly applied, the traffic signal can produce efficient traffic movement, smooth and safe. Improperly applied, excessive delays and disobedience result. This is serious because if we break down the driver's respect for this highest type of traffic control, think what happens to the driver's respect for the lowly stop-sign. Excessive delays due to improper application of signals on main streets force traffic to seek alternate routes. Frequently these alternate routes end up in residential sections where the presence of heavy through traffic is undesirable. Heavy traffic on residential streets endangers the lives of children, causes vibration and noise, stirs up dust, and in general brings deterioration of property values. Increased accident frequency is usually a direct result of the incorrect use of signals. Traffic seeking alternate routes that are not properly protected for heavy traffic usually results in an increase in accidents. Last, but not least, disobedience to improperly timed traffic signals can easily lead to a general breakdown of the entire traffic-control program.

The motorist likes to see green lights. He despises red lights. You yourself know that every morning on your way to work if you find a green light when you get to the main street, you like the operation of that signal. It is certainly doing a beautiful job. If it is red every morning, you may feel a little different about the matter. The pedestrian also likes to see green lights. He dislikes waiting. If he is made to wait more than 50 or 60 seconds, he becomes impatient and may decide to cross without benefit of signal.

Then, of course, we have the taxpayer. He and she are, incidentally, all of us. You and I pay taxes the same as the man who is sometimes on the other end of the telephone fuming at us and asserting that he is a taxpayer. All of us are interested in getting the most for our dollar, and we want this valuable tool, the traffic signal, to do its most efficient job—efficient in terms of assigning the right-of-way.

Many of us are prone to say, "I'm going to get a simple piece of signal equipment that just switches the lights from green to amber to red and back again—none of the 'fancy' equipment for me. It's too expensive to operate." Is it too expensive or are we just too lazy to operate it?

### A Truck Costs 20 Cents a Minute

Let's talk for a moment about the value of flexible timing. By flexible timing I mean having one timing schedule for signals as they operate during the morning rush, another one during the middle of the day, another one during the evening rush, and possibly a fourth, fifth, or sixth timing schedule for use during other times of the day and on special days of the week.

In Atlanta, the trucking association

# FLEXIBILITY AND THRIFT—TWO IMPORTANT DUAL ADVANTAGES

## 6 REASONS WHY DUALS stand the "gaff" and give better service longer!

1. **SETH THOMAS CLOCK MOVEMENT...** Backed by the world's most famous fine clock maker.
2. **STAINLESS STEEL COIN MECHANISM** ... Smoother running in all weather conditions.
3. **WEATHERPROOF HEAD...** With handy work-shelf door.
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GROWING parking problems are making more and more cities thankful that they have Dual Parking Meters. These flexible automatic meters are convertible to numerous single coin and multiple nickel, penny combinations by a single adjustment on the street . . . without extra expense or change of a single part.

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has recently released a figure of 20 cents per minute for operating their trucks on the streets. In other words, they say that it requires an investment of 20 cents for every minute that a truck is rolling on the streets of Atlanta. Now suppose that we stop just one truck for a red light on a main street and nothing comes out of the side street and no pedestrian crosses; the truck sits there through the red light and is delayed, say, 20 or 30 seconds. Suppose there are four such delays within a mile—40 cents is lost. Think how the delay adds up during the day's mileage. What about your time and my time and the time of the other business people who drive automobiles? What about the delay to the bus company and its patrons, taxicabs and their patrons? What about the irritation to the general public—stopping for red lights in isolated spots for no apparent reason, no traffic on the cross streets, yet the light is red? The driver either sits there or runs through the red light.

Flexible timing will frequently enable the city to postpone the need for new facilities. Most cities today realize that they need far more new streets, bridges, underpasses, and overpasses than they can possibly build within the next few years. Traffic signals are relatively cheap, costing only a few thousand dollars.

For example, consider a four-lane street on which parking is permitted. With parking on each side of the street, there are only two lanes left for moving traffic. Suppose we find that an extra lane is needed on the street during the rush hours. That means building another street the same width or taking the parking off the street or using an unusually long signal cycle during the rush hours and increasing the capacity of the street for carrying traffic without disturbing the parking. Many times the long signal cycle is within reason and very acceptable to the side-street traffic if it is used only during the peak period. In this way we may postpone removal of parking or the expensive job of building a new street. There are many locations in cities today where improved signal timing could clear up congestion, and the cost would be only a few thousand dollars.

### Traffic-Signal Emergency Is a Must

If anyone doubts the value of having more than one signal indication per approach, I would like you to take a short ride with me around the streets of some of our large cities. I will let you find some of the traffic signals for me, for some of them are well hidden. True, they are in plain sight, if you happen to be looking in the right direction. Frequently, there is only one little signal in a maze of trees, wires, poles, and electric signs, and the view of that little signal is often blocked by trucks and buses. The use of more than one indication is generally accepted by progressive traffic authorities. There should be a minimum of two indications for each approach in cities. The use of additional signal heads costs little and can go a long way toward reducing accidents at many high-accident locations.

Traffic engineers and city electricians who may be reading this are likely saying: "Fine talk, high ideals, but my mayor and council, my city commission, my purchasing committee, or my purchasing agent certainly won't go along with the purchase of all those fancy gadgets and extras. They keep us down to the bare necessities of life." Good traffic signals are among the bare necessities of life, and I mean *life*, on our city streets.

As public servants it is our duty to provide efficient service, and traffic-signal efficiency must be measured by what kind of a job the signal does in assigning right-of-way. Do people still have difficulty in seeing the signals? Are they still being involved in accidents that can be traced to the lack of sufficient signal heads? Are delays excessive? What kind of observance do you obtain? Do people respect your traffic signals? In order to discharge our duty as public servants we must make every effort to explain to our city fathers why it is good economy to buy the best signal equipment. Anything less than the best is wasteful.

In 1946 most of the traffic authorities in the country agreed that by 1970 traffic volumes would reach a certain figure. It is still a long way to 1970 and traffic volumes in this country have already exceeded the figure which most of us predicted would be reached by 1970. If we are planning for equipment to last 20 years, let's be sure that we get equipment which will be an efficient job for 20 years.

Two or three property-damage accidents a year, avoided by the use of good equipment, will wipe out the difference in initial cost of adequate traffic-signal equipment.

EDITORIAL NOTE: This article was prepared from Mr. Bevins' address at the second Traffic Signal Seminar, sponsored by Eagle Signal Corporation and Carrier & Gable, Inc., at Hotel Olds, Lansing, Mich., December 3 and 4, 1952.

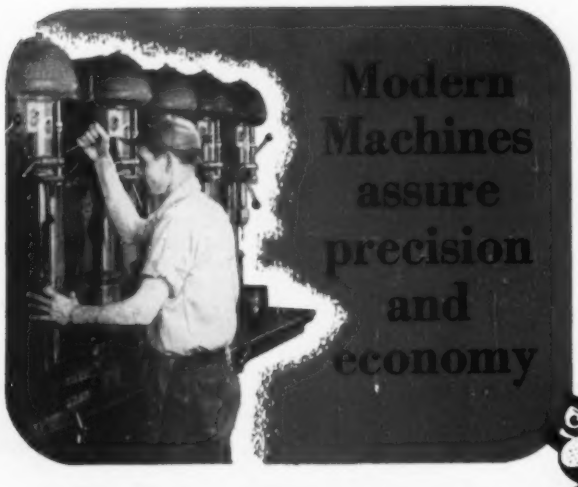
## Skid-Warning Signal on Misty Bridge

ABOUT 2¾ miles from downtown Akron, Ohio, there is a high-level bridge that has an unusual hazard that is now controlled in a special manner. The bridge is 56 feet, curb to curb, 900 feet long, and 210 feet above the bed of the Cuyahoga River Gorge. Open-deck steel mesh forms the roadway.

Just upstream is a hydroelectric plant. When weather conditions are favorable for it, a continuous mist rises and makes the steel-mesh deck hazardous. Ice formed at freezing temperatures increases the hazard.

The photograph shows the SLOW sign and three lights installed for protection. The SLOW and ICE legends are red neon. The light is a continuous amber roll light. The bridge is patrolled at all times and sign and lights are operated manually by the Police Patrol.

R. J. MYERS
*Superintendent*
*Police and Fire Signals*
*City of Akron, Ohio*



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# The Philadelphia Parking-Ban Story

By LESLIE WILLIAMS
*Deputy Commissioner of Streets and Traffic*
*Philadelphia, Pa.*

TODAY cities are faced with the threat of destruction from within by traffic strangulation just as surely as they are threatened from without by atomic bombing. Perhaps only another Pearl Harbor can change this attitude, but we hope that Philadelphia's attack on congestion may serve the purpose traffic-wise.

Philadelphians didn't wait to be strangled. City officials instituted a parking ban covering a large segment of the central city area. *This is the first time that parking has been banned over such a large area and for so long.* This drastic step in the right direction to relieve traffic congestion is being watched by city officials and traffic engineers the country over.

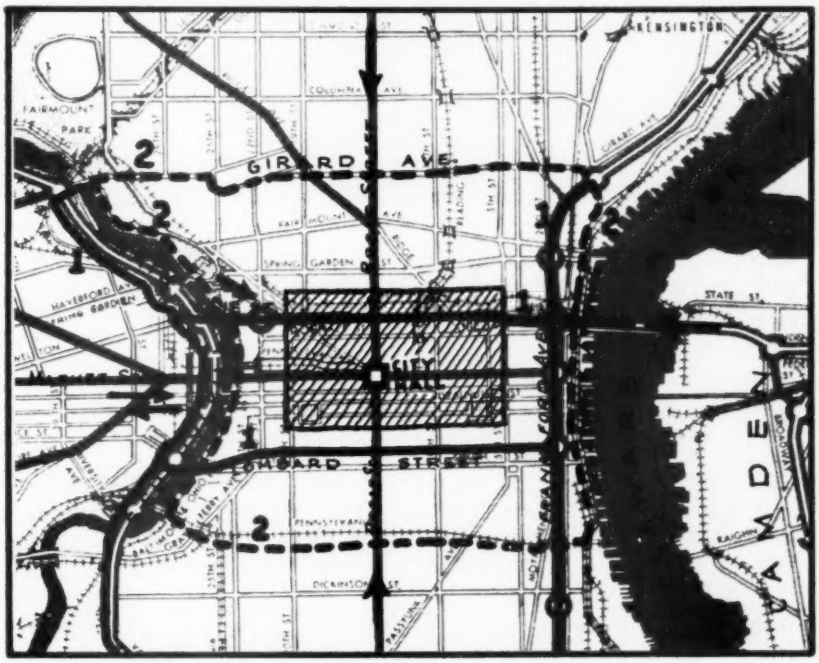
After World War I a strange phenomenon took place. American enterprise mixed huge quantities of cement, rubber, and gasoline. Automobiles began rolling in millions on pneumatic tires over paved roads and sprawled our cities out like fantastic monstrosities over the surrounding countryside. Following World War II, the tremendous growth in the automobile census, coupled with a housing boom which has not yet run its course, caused another outward explosion of our cities into ever growing metropolitan areas. *The flight from the city was on! Uncontrolled decentralization has become almost a national disease.*

Decentralization is a problem in itself, but it has contributed in a large measure to the traffic-congestion malady which is afflicting every urban community in the United States. Since World War II, Philadelphia alone has experienced an increase of over 150,000 vehicles, a rise of over 70%. These flooded into the downtown area, clogging narrow streets which have no greater capacity today than in the horse-and-buggy era. Tried and proved engineering measures (one-way streets, traffic-signal synchronization, abolition of curb parking during rush hours) were soon fulfilled by mounting traffic. Finally a stage was reached which was considered critical by all concerned with the movement of traffic. This is the stage at which curative measures can be taken in any city.

## Philadelphia Acts

Acting on a suggestion to Mayor Joseph S. Clark, Jr., from R. F. Tyson, Philadelphia Transportation Company official, City Managing Director Robert K. Sawyer, under his police powers, ordered a complete parking ban in the central city area for a trial period beginning December 1, 1952, and ending January 5, 1953. Later it was extended on a temporary basis to February 28, 1953, and on that day was made permanent. It is effective every day except Sunday from 8:00 a.m. to 6:30 p.m., although stopping for short periods of time is permitted at some locations during the mid-day off-peak hours. It covers an area of approximately one square mile in the heart of the city, bounded on the north and south by Callowhill and Spruce Streets and on the east and west by Fifth and 19th Streets. This area contains roughly 160 city blocks and 25 miles of streets.

Not too much opposition greeted the ban because new parking regulations, considered drastic at the time, were made in 1946 covering about one-half of the area affected by the new ban. At that time surveys were made of curb parking practices and travel habits of midtown shoppers. The educational job performed by the various traffic and parking committees was so effective that the city's merchants and business organizations defrayed the cost of the surveys. These disclosed that 40% of all vehicles in the area were parked in violation of police regulations and only one person in ten drove into the center of the city on a shopping trip. Furthermore, only 2.2% of the customers of Philadelphia's largest department stores and specialty shops came by automobile and parked on the street. An analysis of the information obtained from 15,000 shoppers showed that 75% came downtown by public transit, 13% by train, 8.4% by automobile, 3.2% walked and 0.4% came by taxi. Therefore, we were not surprised by




**The type of thinking being done in the City of Philadelphia, Pa. The rectangle is the parking-ban area in the central business district. The heavy lines—solid (No. 1) and broken (No. 2)—are alternate possibilities for a system of encircling streets and highways to facilitate traffic desiring to avoid going through the business district.**

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GENERAL ELECTRIC

the approvals given the present ban by the press and some of the trade associations whose members recalled the 1946 surveys and the relief obtained at that time. However, some opposition was voiced prior to the effective date of the ban, but in general most of it has disappeared now that the intolerable rush-hour traffic tie-ups and all-day congestion have been alleviated.

The central city area where the new ban is effective contained only 10,000 feet of legal curb-parking space before the ban. In other words, 92% of the curb-lines were prohibited to parking. The new ban extends this area 3%, so that now 95% is restricted. We eliminated 506 of the 1,098 pre-ban legal parking spaces. However, when one considers that the eliminated space is equivalent to only 2% of the 23,000 off-street parking stalls available in garages and lots, it can be seen that the new measures are not as drastic as one might expect.

### Results of the Ban

Before the ban was placed in operation, accurate checks were made of existing conditions regarding the number and duration of delays and the schedule speeds for automobile traffic and transit vehicles. Similar checks were made after December 1 to test the effectiveness of the ban in accomplishing a reduction in traffic congestion. In some areas delays to traffic were cut as much as 50%. The speed of automobile movements actually increased an average of 42% on the north-south streets and 51% on the east-west streets. Motorists move more freely in and out of off-street parking facilities and delays to other traffic at these points have been reduced sharply. Also, the time required for police, fire, and other vehicles to reach the scene of an emergency has been lessened, resulting in a saving of property damage and possibly lives in some cases. Impressed by the freedom of traffic movements, the Civil Defense Council requested the city to place the temporary ban on a permanent basis.

### Big Speed-Up in Transportation Service

Other facts released by the transit companies substantiate the beneficial results of the ban. New Jersey buses operating into the downtown area have cut their turn-around time from 50 to 25 minutes. Delays to PTC transit vehicles have been reduced 34% and cut-backs are fewer. Schedules are being maintained and headways are more even, resulting in better vehicle loading and more uniform and improved service to the half-million daily PTC riders to the downtown area. Taxicab companies report better service with patronage and revenues up, while fares are lower due to faster trip time. Many commercial-delivery concerns have expedited their service and trucks can be parked much closer to their destinations in the downtown area during the mid-day off-peak hours.

Although traffic is moving faster now, the parking ban has been a boon to the agencies concerned with safety. During December of last year, major traffic accidents in the central city area were only 55 compared with 63 in December 1951. PTC reported that the accident rate involving their vehicles has been reduced 20% in the downtown area.

Much of the success of the ban can be attributed to the strict enforcement of the new regulations under Deputy Police Commissioner Herbert J. Kitchenman. The Police Department has done an excellent job, aided of course by the uniform restrictions, the clearly posted signs, and the backing and wide coverage devoted to the ban by the newspapers. A properly informed motoring public attuned to a spirit of cooperation by the editorial pages of the press, certainly eased the enforcement duties. At first, additional traffic officers were assigned to the area, but soon these men were returned to their permanent districts since it was found that the work could be handled ably by the regular force which was considered undermanned before the ban went into effect.

### Overnight "Street-Widening" Job

Philadelphians are happy about the new parking regulations, and they have every right to be. The task of going downtown, whether it be for business, shopping, or pleasure, is easier, faster, safer, less nerve-wracking and more pleasant for the motorist and the transit rider. Most of the skeptics have smiles on their faces nowadays as they move freely through the center of the city. In effect, what has been done is an over-night street-widening job of tremendous magnitude at no cost to the over-burdened taxpayer. Formerly the narrow one-way three-lane streets were clogged with vehicles. Parking in the right-hand lane forced delivery trucks to use the left or driving side, thus only a single lane remained for moving traffic. By the simple elimination of street parking space for 506 automobiles, curb corrosion has been wiped out and the streets are being used for their intended purpose—that of moving traffic. The use of downtown streets for free outdoor garages can no longer be tolerated if the lifestream of the city is to be preserved.

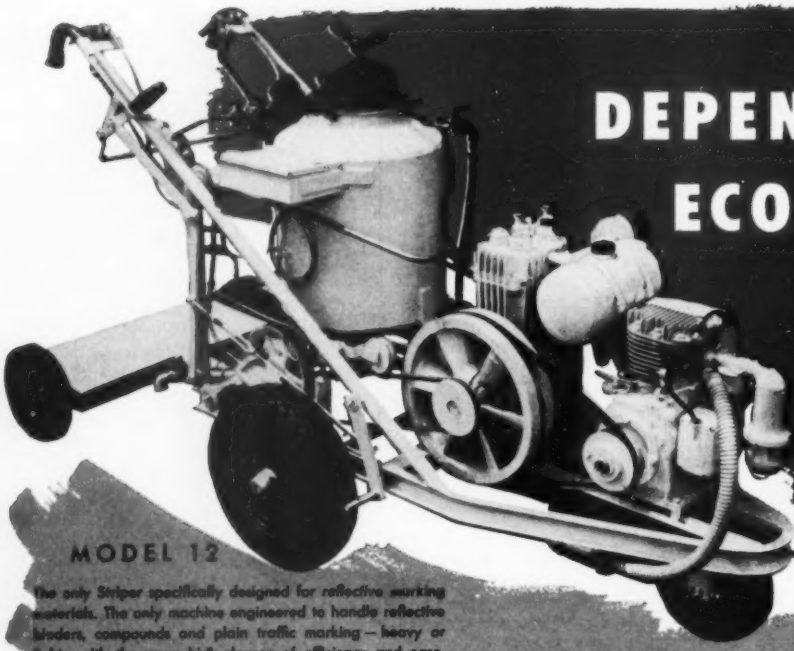
During the public hearings before the City Council of Philadelphia, figures presented by the Delaware River Port Authority and traffic checks compiled by the Fairmount Park Police and the Traffic Engineering Bureau of the city showed that there was no decrease in the number of automobiles entering the central city area. At the same time, the number of passengers using Philadelphia Transportation Company vehicles and Public Service of New Jersey buses, as well as commuter traffic on the Pennsylvania and Reading Railroads, increased slightly. Tax receipts from downtown garages and parking lots, based on the amount of business, were higher than for a similar period the previous year.

Nevertheless, a number of small merchants produced figures showing a substantial decline in their business. Surveys are continuing in certain blocks by permitting thirty-minute parking, to obtain facts concerning the actual business obtained from curb parkers in these blocks by the small merchants.

The people of Philadelphia and its city administration can be proud that they have initiated an advance in traffic engineering which has proved beyond a doubt that simple measures, properly enforced, can provide street capacities capable of handling today's traffic volumes in the hearts of our cities. Moreover, it can be done simply and promptly without the expenditure of millions of additional tax dollars for new streets. Judging from the interest shown in this historical first by traffic experts, soon other cities will invoke similar parking bans in their attempts to solve one of the most critical problems threatening the very existence of the city itself—downtown traffic congestion.

### The Challenge

**CITIES are beginning to look askance at thinking which bans curb parking on the one hand while inviting a greater influx of cars by building highways into the business district and providing ever-larger long-time parking facilities to attract as many of the rush-hour automobiles as possible. Philadelphia has done an outstanding job of freeing stalled and sluggish vehicular traffic. The city senses the need for "free-flowing belt routes" and "off-street parking reservoirs." The city also senses the need for consultants able to design the complete system "in an orderly fashion." Like all other metropolitan areas, Philadelphia needs a basic plan for traffic and city transportation, but "has no administrative machinery, technical help, or tools set up specifically to assemble, analyze, and interpret traffic facts, define the traffic and transportation problems, and formulate the over-all traffic policy." It takes a clear, logical and forceful mind to "get the maximum use out of existing streets to bring the greatest good to the greatest number of people at a relatively little cost."**



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# *Zoning and Planning Notes*

**Edited by NORMAN WILLIAMS, Jr.**

## *Housing Shortage in New York City—Judicial Notice*

NEW YORK. *Powell* v. *Stichman*, 117 New York Supplement (2d) 528 (Supreme [lower] Court, Nov. 17, 1952).

The New York State Legislature has for several years extended the life of several temporary housing projects by postponing the date of closing of such projects. In this case the New York State Housing Commissioner tried gradually to vacate the projects by offering the tenants alternative accommodation. When the Commissioner's power to force tenants out under these conditions was tested, the Court held that the legislative postponement constituted a legislative finding of a continuing housing emergency, and that the Commissioner—in the absence of any fire or health hazard—had no power under these conditions to begin closing the projects in advance. The Court specifically took judicial notice that the housing emergency—

> "has not only not ended, but housing conditions are, if not worse, at least no better . . . the housing situation has certainly not improved since March 1952. . . ."

## *Residential Zoning—Schools Permitted but Colleges Excluded—Consent Clauses*

NEW JERSEY. *Yanow* v. *Seven Oaks Park*, 11 New Jersey 341, 94 Atlantic (2d) 482 (Supreme Court, January 26, 1953).

A large 3-story brick mansion, located on a 3-acre lot in a single-family residential area in Orange, was purchased and occupied by the Eastern Christian Institute, to be used for both classrooms and dormitories in connection with the Institute's program of nondenominational post-high-school religious training for the ministry and for missionary work. The permissive single-family zoning regulations for the area permitted "public and parochial schools"; and private schools were also permitted, with the written consent of 80% of the owners within 200 feet and the approval of the Board of Appeals.

When the Institute's occupancy of the mansion was challenged, the trial Court held that the distinction between public and private schools was arbitrary, and that the consent clause was an invalid delegation of legislative power to private landowners. On appeal, the invalidity of the consent clause was conceded, with the Court noting its agreement; but it was held that the ordinance could and did exclude colleges.

In the opinion, the phrase "public and parochial schools" was held to refer only to elementary and high schools, and not to colleges or other institutions for post-high-school education. The court held that these regulations were designed to permit those community facilities needed to serve the areas around them, but not institutions serving a much larger area:

> "We conclude that the intent expressed was to permit such schools as are required for the good of the residential area, namely those established for the general education of the children of the neighborhood . . . . but to exclude institutions of higher education."

Turning to the constitutional question, a municipality was held to be constitutionally authorized to exclude schools of higher education or specialty schools from a residential area, when elementary and high schools serving the area are permitted. This conclusion was reinforced by reference to the language in the Enabling Act reciting the purposes of zoning, and by opinions from various text books on zoning; and a number of cases were distinguished on other grounds. Finally, the Court concluded with a broad statement of the constitutional basis of zoning:

> "It is obvious from an examination of the opinion in *Euclid, Ohio* v. *Ambler Realty Co.*, supra (272 U. S. 365), that the U. S. Supreme Court has not favored the view expressed by some authorities on zoning that zoning is designed to exclude from residence districts only those activities which are injurious, but has approved the view that zoning may validly exclude non-injurious uses where reasonable city planning prompts such a course. Such a basis for zoning is not a novel theory. It has been said that the primary objects of zoning, often stated as the protection of public health and safety, include the 'protection of the value and usefulness of urban land, and the assurance of such orderliness in municipal growth as will facilitate the execution of the city plan and the economical provision of public services,' and that 'Only by controlling to some degree the future population and character of use upon given areas and the proportion of impervious covering on given areas, can a city properly plan the size and location of streets and sewers. Zoning is the foundation upon which any permanent city planning must be built. But even from a purely public point of view the primary object of zoning is to insure a maximum economic use of all land in the city.' (Citing 17 A. B. A. J. 163.) These observations appear peculiarly appropriate to the purposes expressed in our statute."

The *Yanow* opinion is one of the more important and genuinely forward-looking zoning opinions in recent years, and should rank with *Duffcon Concrete Products* v. *Cresskill*, 1 New Jersey 509, 64 Atlantic (2d) 347 (1949), in providing a sound basis for progressive zoning in that state. What is almost equally important is that the decision is clearly thought-out, and most of it is expressed in sufficiently specific terms to clarify basic concepts of zoning law—and so make it possible to understand what are its implications in other contexts.

In New Jersey, then, it has now been explicitly held that the classification of uses into zoning districts may be based not only upon considerations of mutual compatability and the degree of objectionableness (the "nuisance criterion"), but also on two other type of criteria. First, the inter-relationships of various uses (the "service criterion") may be considered in such classification. For example, a residential area needs an elementary school, but not necessarily a college; a commercial area needs commercial printing shops along with business offices, lawyers, and advertising agencies; a button factory should not be separated too far from a garment factory. Under a similar principle, a local shopping district might — as proposed in the Plan for Rezoning New York—be restricted to groceries, drug stores, and other stores used for daily shopping by those living nearby, in order to keep the number of stores in a residential area down to what is actually needed. In fact, this "service criterion" is necessarily widely used in zoning classification; but its legal status has not been too clear, at least in instances where the nuisance factor is not too evident.

The second quotation takes a further step, by indicating that zoning classification may also take into account broader considerations of city planning—as for example the economical provision of public services. There has been some previous mention of this in zoning opinions; but since such considerations are frequently taken into account, it is useful to have the courts indicate express approval of this.

## *Termination of Non-Conforming Uses*

NEW YORK. *People* v. *Miller*, 304 New York 105, 106 North Eastern (2d) 34 (Court of Appeals, April 23, 1952).

TEXAS. *City of Corpus Christi* v. *Allen*, 254 South Western (2d) 759 (Supreme Court, January 14, 1953).

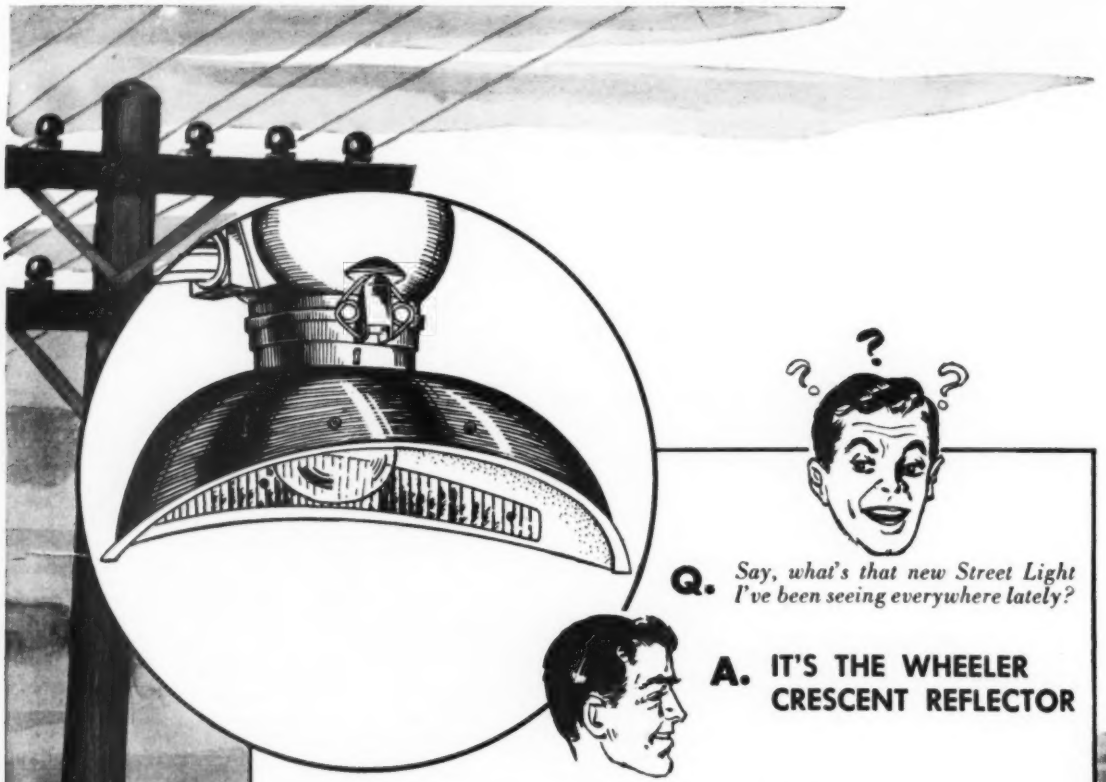
CALIFORNIA. *Ricciari* v. *Los Angeles County*, 252 Pacific (2d) 773 (District Court of Appeals, January 28, 1953).

The New York case involved a prosecution—under a local zoning ordinance which forbade keeping of pigeons and several other types of animals in a residential area, except by permission of the Board of Appeals—of a resident who had been keeping pigeons at home since before the passage of the ordinance. The Court of Appeals held that the ordinance did and could apply in this situation.

While noting that enforcement of the ordinance could perhaps be justified here on the ground of nuisance, the Court went on to review at length the New York cases on the application of zoning regulations to nonconforming uses. In summarizing these cases, the Court stated that, while substantial businesses or buildings had been protected in New York—frequently on the theory of a "vested right"—retroactive zoning regulations which would result in only slight damage to the defendant could be validly enforced. Conviction of the defendant was therefore upheld.

Some language in the *Miller* opinion appears to say that zoning cannot require the termination of any substantial establishment, and therefore casts some doubt on the constitutionality of zoning provisions for the compulsory elimination of nonconforming uses in New York State. However, the discussion on termination of substantial buildings is pure dictum, quite unnecessary for the conclusion that the regulations here involved could be invoked against pigeons. Moreover, most of the cases cited refer to the application of zoning restrictions passed between the start and the completion of a building or structure; and the opinion reads as if

(*Continued on page* 161)



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# *Legal Notes and Decisions*

**Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS**
**Charles S. Rhyne, General Counsel**

### Assessments—Assessor's Valuation—Presumption

In appeal from judgment affirming city assessor's valuation on property, wherein court charged jury that valuation must be compared with other like property throughout city and that tax assessor's estimate was prima facie correct, held that there was no error in charge, for tax requirements of equality and uniformity comprehend other like property and that tax assessor's valuation is, as matter of law, prima facie correct. *McCardle's Estate* v. *City of Jackson*, 61 So. (2d) 400 (Miss., Dec. 8, 1952).

### Automobiles—Accident Report—Ordinance

In appeal from conviction under ordinance requiring driver of vehicle involved in accident to report it immediately to police department, held that conviction was not sustained where it did not appear beyond reasonable doubt that defendant, in reporting accident within week thereafter, had failed to give notice within a reasonable time. *Green* v. *City of Atlanta*, 73 S. E. (2d) 96 (Ga. App., Nov. 12, 1952).

### Bridges—Unguarded—Town Liability

In action against town for damages incurred when auto went off edge of bridge on town highway and fell into creek bed, held in affirming verdict for plaintiff, that jury could find that lack of guard rail, reflectors, and other markings, usual to town bridges, was proximate cause of injury where this condition continued for substantial period prior to accident. *Nagel* v. *Town of Candor, Tioga County*, 116 N. Y. S. (2d) 796 (N. Y. Sup. Ct., App. Div., Nov. 17, 1952).

### Contracts—Subbids—Statute

In combined proceedings against town, mandamus by lowest subbidder and injunction suit by taxpayers, arising out of award of demolition subcontract for new high school to general bidder, who did not tender subbid, held, in enjoining expenditure by town, that award of subcontract was void as statute requires subbid for demolition work; and, in denying subbidder's mandamus, that, as subbids are directed to general bidder and do not culminate in contract with town, subbidder has no right to insist that bid be accepted. *East Side Construction Co.* v. *Town of Adams* and *Melillo et al.* v. *Town of Adams*, 108 N. E. (2d) 659 (Mass., Oct. 31, 1952).

### Councilmen—Contempt of Court—Remittance

In proceeding to review lower court's refusal to remit contempt punishment, imposed when councilmen failed to comply with order directing city to pay another municipality its share in construction costs of new sewer plant made necessary to avoid continuance of nuisance, held that court abused discretion in refusal, as councilmen, in refraining from compliance with order and seeking legal remedies to avoid it, were acting as public officers and may well have felt duty bound to pursue remedies which counsel advised. *City of Vernon* v. *Superior Court of State in and for Los Angeles County*, 250 Pac. (2d) 241 (Cal., Nov. 21, 1952).

### Gambling Devices—Baseball Pool—Suspended Sentence

In appeal from conviction under ordinance prohibiting operation of gambling devices, where suspended sentence rendered in district court was reversed on city's appeal to municipal court, held that conviction and sentence of municipal court were correct, for operation of baseball pool was gambling device under ordinance and that city was "aggrieved" party entitled to appeal to municipal court as suspended sentence deprived it of fine consequent on ordinance violation. *City of Milwaukee* v. *Stanki*, 55 N. W. (2d) 916 (Wis., Dec. 2, 1952).

### Intoxicating Liquors—Carrying Open Bottle—Scienter

Where city appealed from judgment of acquittal in prosecution under ordinance prohibiting carrying of open bottle of liquor in car where it would be accessible to driver, held that acquittal was proper since it did not appear that defendant had knowledge that open bottle under front seat of car was being transported under conditions prohibited by ordinance. *City of Hutchinson* v. *Weems*, 249 Pac. (2d) 633 (Kans., Nov. 8, 1952).

### Licenses—Marriage—Refusal

In action to compel city clerk of Jersey City to issue marriage license which was withheld because application showed legal impediment to remarriage, held that mandatory order would not lie, for statute, authorizing clerk to determine whether legal impediment appears to exist, vests him with measure of judicial authority and that Mexican divorce lacking colorable validity was appearance of impediment justifying refusal of license. *Antunes* v. *Antunes et al.*, 92 Atl. (2d) 653 (N. J. Super. Ct., Nov. 18, 1952).

### Off-Street Parking—Condemnation—Alternative Methods

In action against city for judgment declaring void an ordinance authorizing city taking of land for municipal parking lot, held that ordinance was valid, for fact that city has established parking authority does not preclude municipality itself from exercising power of eminent domain since statute permitting land condemnation of parking lots envisages use of both methods over period of time. *Lenzner et al.* v. *City of Trenton*, 91 Atl. (2d) 896 (N. J. Super. Ct., Oct. 8, 1952).

### Policeman—Death Before Dismissal Hearing—Pension

In proceeding by policeman's widow to compel city to pay pension, where civil-service dismissal ruling had been overturned by court and full hearing by board ordered, which hearing had not been held prior to officer's death, held that widow was entitled to have question of injury in course of duty tried by jury, for officer at death was city employee as hearing, condition precedent to discharge, had not been held. *English* v. *City of Long Beach*, 250 Pac. (2d) 298 (Cal. App., Nov. 21, 1952). *Reh. den.*, Dec. 8, 1952.

### Policeman—Killed on Duty—Workmen's Compensation

In action against city for workmen's compensation by mother and son of policeman who was fatally shot while answering trouble call, held that claimants were entitled to benefits as deceased officer met his death as result of injury which grew out and was received in course of employment. *City of Harlan* v. *Ford*, 252 S. W. (2d) 684 (Ky., Nov. 7, 1952).

### Railroads—Service Discontinuance—Appeal Rights

In appeal by cities from order of railroad commission authorizing discontinuance of passenger train service for reasons of economic losses and lack of foreseeable improvement, held that appeal does not lie from order, as commission was proceeding below in legislative capacity and there is no necessary statutory provision granting right of appeal. *City of Middleboro et al.* v. *Louisville and Nashville R. Co.*, 252 S. W. (2d) 680 (Ky., Nov. 7, 1952).

### Sanitary Code—Federally Inspected Food—Validity

In prosecution for unlawful possession of pickled brisket which had water content greater than 10% allowed by New York City Sanitary Code, held that possession was unlawful notwithstanding fact that meat was federally inspected and water content within 20% maximum established by Department of Agriculture, as any conflict with federal regulation would not void code provision, for in protecting people against fraud and deception in food sales, the state's power is plenary. *People ex rel. Unger* v. *Max Gellis Sons Corp.*, 116 N. Y. S. (2d) 451 (N. Y. City Magis. Ct., May 23, 1952).

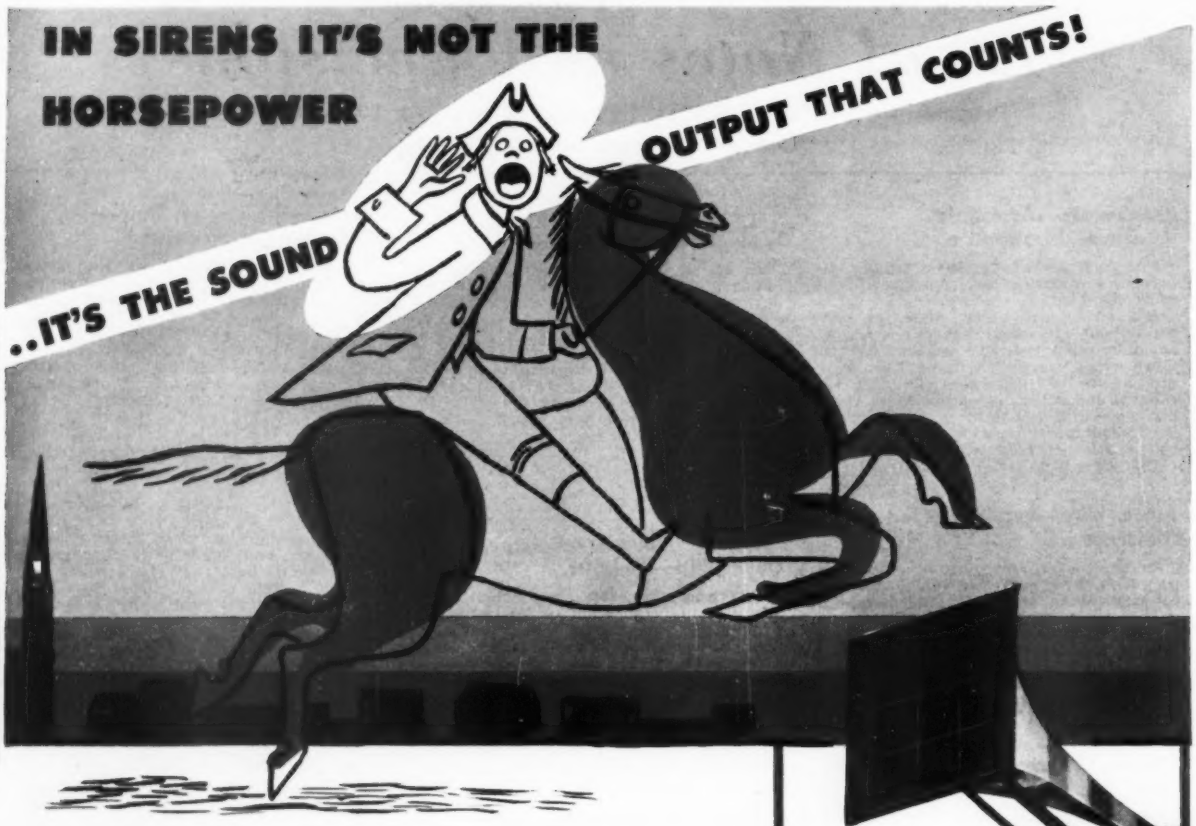
### Sidewalks—Fall on "Play Street"—Liability

In workmen's compensation proceeding against education board, where school superintendent slipped on icy sidewalk of street designated as "play street" as she was returning from private errand and about to direct janitor in sanding operation, held that injury is compensable for abutting sidewalk was part of employer's premises and injury arose out of and in course of employment. *Briggs* v. *Passaic Board of Education*, 92 Atl. (2d) 513 (N. J. Super. Ct., Nov. 19, 1952).

### Taxicabs—Liability Insurance—Ordinance

In suit to enjoin enforcement of ordinance requiring taxicabs to be insured in amount of $50,000 against personal injury or death liability, and in amount of $100,000 for injuries or death to more than one person in more than one accident, held that ordinance is valid although statute requires but $15,000 insurance for passenger carriers and limits death liability to $20,000, for city may, to meet local conditions, impose more rigorous or definite regulation under proper delegation of power in addition to those imposed by state. *Jones* v. *City of Chicago*, 108 N. E. (2d) 802 (Ill. App., Nov. 6, 1952).

*(For legal notes on zoning and planning, see pages 155, 161, 163)*

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**IF you have any unsolved parking problem**
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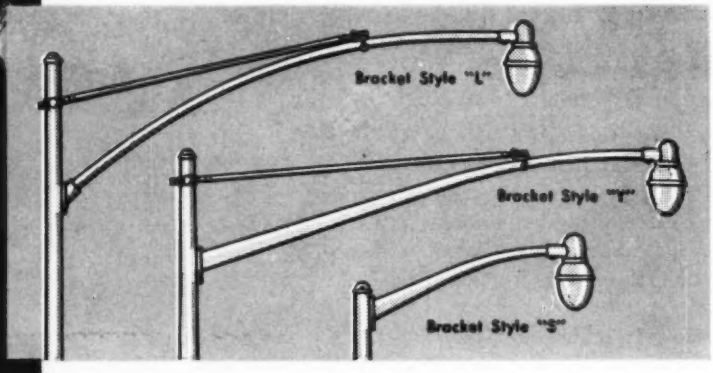


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# Zoning and Planning Notes

(*Continued from page* 155)

the problem of modern zoning regulations, requiring termination of nonconforming uses after an appropriate period of amortization, had not been briefed or argued.

The Texas case involved an open-air automobile wrecking yard, where spare parts were taken from old cars and sold whenever buyers appeared. Such yards were permitted only in heavy industrial districts, and this establishment was a nonconforming use in a light industrial district. The ordinance further provided that nonconforming automobile wrecking yards should be terminated by January 1, 1950.

The City brought an action to enjoin continuance of the yard after that date, and to enjoin use of the adjoining sidewalks and streets in connection with operation of the yard; and the trial court granted an injunction on both grounds. The latter point was not pressed on appeal, but the Texas Supreme Court reversed the injunction granted below to enforce the provision for compulsory termination.

The Court held that zoning regulations must meet the test of reasonableness, and noted that in general nonconforming uses are permitted to remain. It was then held that *in a light industrial district* the public benefit to be gained by the termination of a wrecking yard was all out of proportion to the hardship involved for the operators of the yard. However, the Court specifically stated that under more appropriate circumstances a nonconforming use *might* be required to terminate, even apart from a finding that such a use constituted a nuisance or was injurious to public health, safety and welfare.

> "Since the nonconforming uses here sought to be enjoined are not shown to constitute nuisances, and do not appear to be harmful in any way to publice health, safety, morals, or welfare, we conclude that to invoke petitioner's ordinance to compel respondents to cease operating their businesses or to move them to another district would be an unreasonable exercise of petitioner's police power and would constitute a taking of their property in violation of Art. 1, Sec. 17 of the Constitution of Texas. We hold that to exercise the power attempted here would be unreasonable because any benefit to petitioner by its exercise would undoubtedly be relatively very small, respondents would be forced to move from a 'light' industrial district, where adjoining uses, admittedly legal, such as second-hand furniture stores, garages and the like, are not substantially out of harmony with, or different from the uses petitioner would force respondents to quit. All respondents operate on Agnes Street and fairly close together so that the burden, if any, of their businesses is confined to a small area while the amount of property in use there is relatively large. Our conclusion is not to be construed as a holding that the ordinance in question may not, under other circumstances, be invoked to terminate a nonconforming use, not a nuisance nor injurious to the public health, morals, safety or welfare."

In the Los Angeles County case, a slaughter-house and meat-packing and refrigeration plant was established in 1924, at a cost of some $80,000. Zoning regulations passed in 1933 restricted the area to agricultural and residential uses only.

(*Continued on page* 163)

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. . . deserve the finest Badges too —

Just like the veteran of your department, the new recruit is equally proud of his badge. That's why more and more departments are starting the men out with the finest badges. Be sure you ask your equipment supplier to show you Blackinton Badges the next time he calls.

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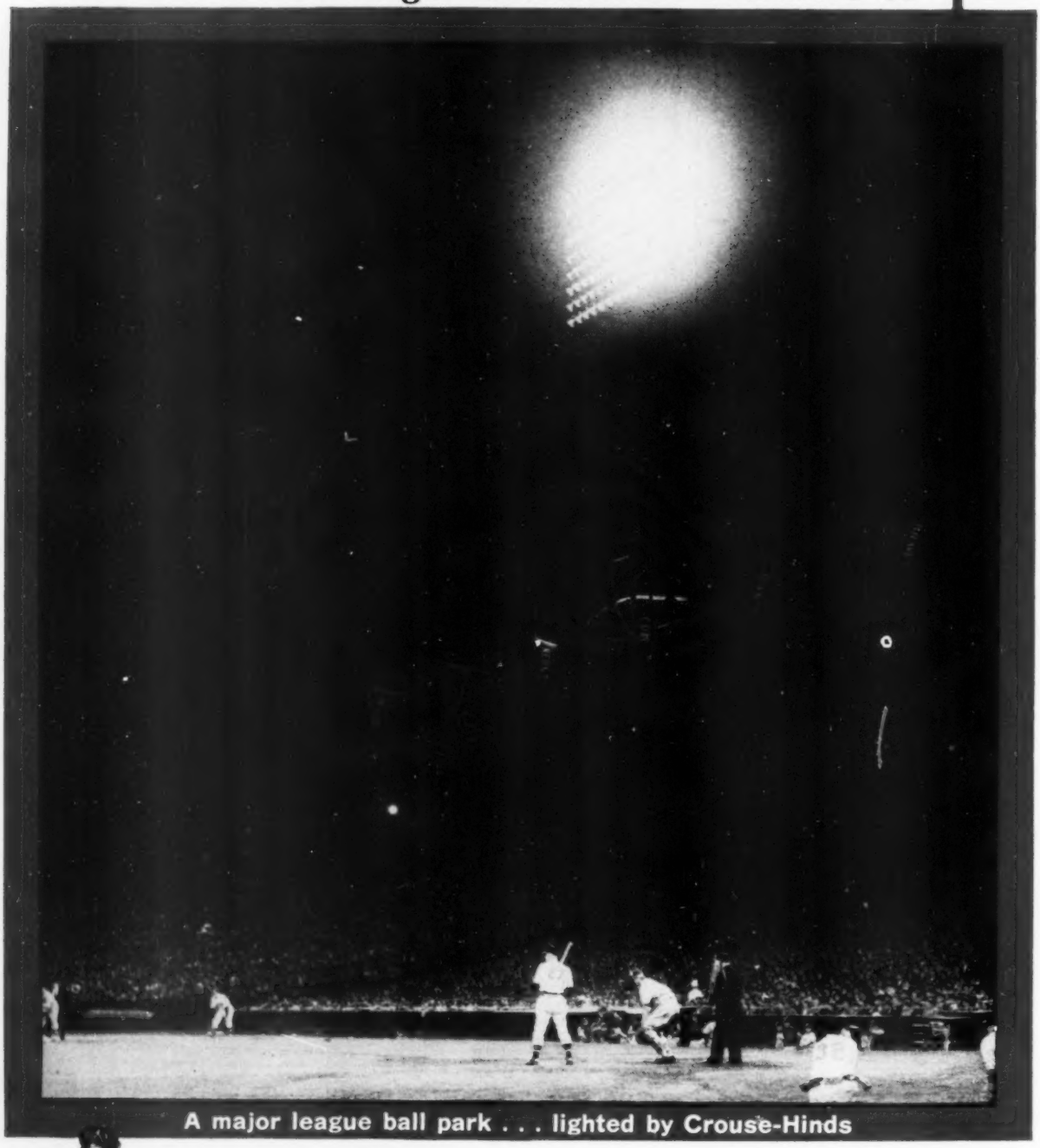

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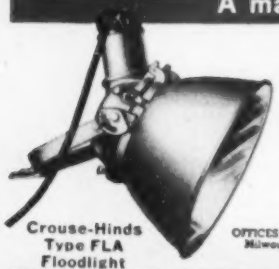

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# Zoning and Planning Notes

(*Continued from page* 161)

When the State Department of Agriculture issued an order in 1945 requiring certain alterations in the slaughter house, the County Regional Planning Commission issued a permit for the alterations, but imposed a condition that the establishment must be terminated on November 1, 1950.

In deciding that the latter condition was invalid, the Court discussed at length the distinction in the local zoning ordinance between exceptions granted for a particular use pursuant to special provision, and "automatic exceptions" provided for nonconforming uses; and it was held that granting permission for an alteration in an establishment which operates under an "automatic exception" did not amount to granting a new exception.

The Court decided that the alterations required in this case should be described as changes made in order to preserve the "original right," not to create some new or additional right. The opinion was specifically limited to the present "unique state of facts," where there was no question of enlargement but merely of alterations in an existing nonconforming use to enable it to conform to other provisions of law.

> "A request for permission to make an alteration which is necessary in order to preserve the owner's original right under an automatic exception cannot in reason be subject to the limitations under which the Board of Supervisors may grant an exception, allow a structure to be altered so as to enlarge it or expand the original use, or directly or indirectly extend the life of the structure."

The Court noted further that there had been no finding of nuisance in this case, and argued that anyone who built houses in the vicinity, in reliance on the Planning Commission's order providing a termination date for the slaughter house, "would be chargeable with knowledge of its (the order's) invalidity." The application of the doctrine of "purchasing with notice" in the latter point is surely carrying legal fiction rather far.

These three cases represent a substantial addition to the rather small amount of case law on the important problem of compulsory termination of nonconforming uses, and each emphasizes different factors which the courts are likely to take into consideration in passing on such regulations. In the New York case, the size of the investment is the primary criterion; in the Texas case, emphasis is focused on the degree of difference between the use whose termination is sought and the characteristic uses permitted in the district. The California case indicates how the courts will scrutinize carefully any alleged indirect legal authorization for a termination order.

In particular, the Texas case is in line with the famous decision in *Jones* v. *Los Angeles*, 211 California 304, 295 Pacific 14 (1930), which invalidated a provision requiring termination of a sanitarium in a residence district. These two cases both indicate that, at least at present, requirements for compulsory amortization and termination of nonconforming uses should not be extended to uses which are permitted in the next-succeeding or similar-looking districts. However, this probably does not affect the constitutionality of the usual type of compulsory-termination provisions in effect today, which involve the removal of stores, factories, and billboards in residence districts.

## *Miscellaneous Minor Cases*

NEW YORK. *Delpriore* v. *Ball*, 118 New York Supplement (2d) 53 (Appellate Division, January 7, 1953). A basement dancing school for 10 pupils or less was held to be permitted as a professional service in a residence district. The fact that pupils were solicited by advertisement, and that traffic resulted from the school, were both held irrelevant.

NEW JERSEY. *Tzeses* v. *Board of Trustees of South Orange*, 91 Atlantic (2d) 588 (Appellate Division, Oct. 6, 1952). A variance from a 100-foot lot width requirement in an expensive residential area was denied in connection with a proposal to divide a deep L-shaped lot into two lots, each with 73 feet of frontage. The *area* of the two resulting lots would have been 2½ times that required under the ordinance. The emphasis on residential "character" in this opinion thus refers to appearance from the street side, quite apart from density.

NEW YORK. *Nelson* v. *Pierce*, 117 New York Supplement (2d) 61 (Supreme [lower] Court, Oct. 18, 1952). Provisions of a zoning ordinance requiring that a private club in an R-1 district shall not be carried on for profit, would not be applied to prohibit in advance the establishment of a golf club in the town—but could be invoked if the golf club was so operated.

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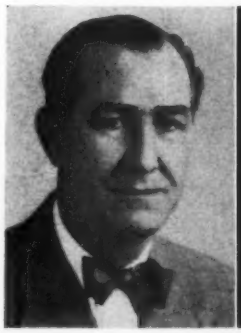
# *Recent City Manager Appointments*

**The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City***



**C. F. Trinkle**
**Mankato, Minn.**

**Carl G. Laughridge**
**Napa, Calif.**

**F. C. Nybye**
**Redondo Beach, Calif.**

**Doyle Miller**
**Bountiful City, Utah**

**Elbridge R. Turner**
**Brookfield, Mo.**

TOM R. CARLE, former secretary-manager at Seminole, Texas, succeeded Leon Carver as city manager of Burkburnett, Texas.

C. R. CHEVALIER, JR., has left the managership of Ashland, N. H., to succeed W. T. McGurn as manager of Green Cove Springs, Fla.

Dormont Borough, Pa., has appointed CLARENCE DEEM, formerly with the Pennsylvania State Highway Department, to succeed Robert H. McGregor as city manager.

ROSS FISCHESSER, former city recorder, is the first manager of Springs City, Tenn.

Succeeding Roy P. Roberts as city manager of Montrose, Colo., is DOUGLAS J. FLAUTT, formerly assistant to the manager at Visalia.

Vinton, Iowa, appointed its first manager, K. W. GARDINER.

JOSEPH GRAMS, former assistant manager at Rapid City, succeeded Jack Elliott as city manager of Hot Springs, S. D.

Former assistant manager of San Diego, LESTER HALCOMB, was appointed first manager of La Mesa, Calif.

WILLIAM HATCH left the managership of Bethel, Vt., to succeed D. Richard Wenner as manager of Clarks Summit, Pa.

ROMUALD LEMAY succeeded D'Arcy St. Pierre as city manager of Louiseville, Que.

Madison, Maine, appointed NORRIS B. LUCE to succeed H. J. Charles as city manager.

LELAND NELSON, former assistant manager at Garden City, Kans., was appointed manager of McCook, Nebr., succeeding C. F. Trinkle.

The first manager of Springfield, Mich., is WILLARD NORRIS.

MILLARD S. QUIMBY, former manager of Dexter, Maine, succeeded W. P. Lemke as manager of Farmington, Maine.

Dexter, Maine, has appointed DONALD J. WARING, former manager of Mars Hill, Maine, to succeed M. S. Quimby as city manager.

PHILIP L. WHITE left the managership of Claremont, N. H., to be the first manager of New Ulm, Minn.

CLARENCE E. RIDLEY
*Executive Director*
*International City Managers' Association*

## *Binghamton, N. Y., Adopts Performance-Type Building Code*

THE City of Binghamton, N. Y., is so far the largest city in the state to accept the applicability of the State Building Construction Code, according to the State Building Code Commission. The state's performance-type code permits the use of modern technical methods and encourages standardization of construction practices, techniques, and materials—a goal long sought in the interest of economy and improvement in building methods.

Binghamton is the sixtieth city in the state to accept the new code; but about 350 municipalities in the state are still using the specification codes that have been criticized on the grounds of inflexibility, difficulty of amendment, and failure to keep abreast of developments.

Donald W. Kramer, Mayor of Binghamton, said, "There have been many changes in construction methods since 1934 when Binghamton adopted its present local code. We are now taking steps to insure that this city will keep abreast of the latest technical developments in the building industry."

## The Municipal Bond Market

### *Representative Municipal Bond Sales, April 1 to April 9, 1953*

| *Date of Sale* | | *Amount* | *Purpose* | *Average Maturity (Years)* | *Net Interest Cost Per Cent* |
|---|---|---|---|---|---|
| 4-1 | Coachella, Calif. | $ 49,000 | | 5½ | |
| | | 24,000 | Water | 11½ | 3.672 |
| | | 42,000 | | 17 | |
| 4-2 | North Haven, Conn. | 1,150,000 | School | 10¼ | 2.237 |
| 4-7 | Cook County, Ill. | 1,000,000 | Forest Preserve District | 8¼ | 2.217 |
| 4-7 | Bayonne, N. J. | 3,000,000 | Sewage Disposal System | 21½ | 3.463 |
| 4-8 | Camp Hill, Pa. | 75,000 | Improvement | 8 | 2.1708 |
| 4-9 | Brattleboro, Vt. | 200,000 | Highway | 6½ | 1.99 |
| 4-9 | Provincetown, Mass. | 375,000 | Water | 18 | 2.421 |
| 4-8 | Dodge County, Nebr. | 476,000 | | 9 | |
| | | 120,000 | school Building | 4 | 2.226 |
| | | 48,000 | | 7½ | |
| 4-1 | Ardmore, Okla. | 72,000 | Sanitary Sewer | 10 | 2.534 |
| | | 117,720 | | 13⅓ | |
| 4-7 | Hillsboro, Ore. | 150,000 | General Obligation and Water System Revenue | 6½ | 2.869 |
| 4-7 | Whitewater, Wis. | 15,000 | Sewer | 4⅔ | 2.156 |
| | | 20,000 | Water Works | 5⅚ | |

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The fact that MI-CO Meters are seldom out of order is a guarantee of maximum benefits during metered hours. Parking spaces are seldom denied motorists because MI-CO's are down for repairs. Earnings are consistently high. The cost of maintenance is so low it's scarcely a consideration. And should a MI-CO need attention, the mechanism is so simple the adjustment is usually made in a few minutes right at the meter location. These are advantages you cannot afford to overlook.

Whether your traffic conditions dictate manual or automatic parking meters, MI-CO's meet all the requirements. Both the MI-CO Manual, and the original, time-tested Twin Automatic, have a definite place in every metered parking plan.

If you contemplate on-the-street or off-the-street parking, a new installation, adding to your present meters, or replacing obsolete meters, it will pay you to contact MI-CO. Write for engineering and construction data as well as maintenance and revenue records. When you check these figures against those of comparable meters, we are sure you will agree that MI-CO's outscore the others every time.

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**MI-CO METERS, 231 Court St., Covington, Kentucky**
*Division of The Michaels Art Bronze Co., Inc.*

## *Ideal Rapid Transit Car*

WITH the growth of suburban communities and with the increasing and apparently insoluble snarl of automobile traffic, greater attention will have to be paid to suburban rail services. There is a danger to the railroads in the abandonment of branch lines that apparently is not always considered. When the rail service is abandoned passengers are forced to use buses or private automobiles. This results in a demand for more and better roads. With improved roads—and poorer rail service—the freight business soon follows the passengers.

I do not see how the railroads can hope to prosper by a continued process of surrendering bits of business to their competitors. With the tremendous advantage of a private right-of-way over the vehicles on today's crowded highways, the railroads should work towards developing equipment that will permit them to compete economically.

The transit operating company requires maximum safety, low initial cost, low operating and maintenance costs, high schedule speeds, and a car that is attractive in appearance and comfortable for the passenger.

The passengers' ideal car would not differ radically from the operator's ideal—a safe, fast, comfortable, and attractive car. In fact, unless the operator pleases his passengers he won't need many cars.

From what I have seen of modern developments in electronic devices, an automatic railroad will be technologically possible in the not too distant future. The major obstacle will then be the psychological reaction of the passengers.

COLONEL S. H. BINGHAM, AUS (*Ret.*)
*Chairman, Board of Transportation*
*New York, N. Y.*
*and Consultant, Long Island Transit Authority*

## *Elm Leaf Beetles Can Be Controlled*

THE United States Department of Agriculture has published a bulletin describing the application of DDT to control the elm leaf beetle. The beetle and the wormlike larva forms of the insect feed on foliage of elm trees.

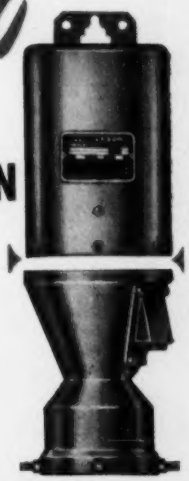
Entomologists of the Bureau of Entomology and Plant Quarantine say that the elm leaf beetle can be controlled by a timely application of DDT in the early summer when the foliage of the leaves is about three-quarters developed. Applied to the underside of elm leaves with a hydraulic sprayer or mist blower, DDT will provide satisfactory control.

Details of the control of the insect are available in Leaflet 184, "The Elm Leaf Beetle," and free copies may be obtained from the Office of Information, United States Department of Agriculture, Washington 25.


FACTS PROVE JEFFERSON

Best of All

FOR MERCURY LAMP OPERATION



Jefferson Transformers are quickly converted to pole-top units by adding Jefferson patented universal adapters.

Make Your Own Comparison—
Check the FACTS—Only
Jefferson has all the Vital Features

Nine *major* design and construction features *vital to top-flight transformer service, economy, and ideal lamp operation are listed below.* Modern *up-to-date* Jefferson Transformers incorporate *every one* of these features to give you *unmatched* value in every detail.

| THE NINE MAJOR FEATURES | JEFFERSON TRANSFORMERS | Transformer A | Transformer B |
|---|---|---|---|
| 1 Press-fit riveted core | YES | YES | NO |
| 2 Leads stapled to core for positive strain relief | YES | NO | NO |
| 3 Color coded and tagged leads | YES | NO | YES |
| 4 Full sub-panel for rigid core and coil mounting with stamped lead designation | YES | YES | NO |
| 5 Hot-dipped galvanizing on all outdoor types | YES | NO | NO |
| 6 Deep Drawn cases on all outdoor types | YES | NO | NO |
| 7 Solidly welded mounting bracket with locking holes plus key slot | YES | NO | NO |
| 8 Universal Pole-Top Adaptor for 2½-4" O.D. Poles (a stock reducing feature) | YES | NO | NO |
| 9 "Dura-Gray" harmonizing finish for modern, attractive installations | YES | NO | NO |

For complete details and data on both outdoor and indoor type Jefferson Mercury Lamp Transformers, write for 16-page illustrated Bulletin 521-5. A copy is yours on request.

JEFFERSON ELECTRIC COMPANY
Bellwood, Illinois

JEFFERSON TRANSFORMERS

## DO THE SAME WHEN YOU REPLACE YOUR CITY'S WORN-OUT METERS

Good "business-sense" demands it. Either one of these great meters give more value-per-dollar in enduring craftsmanship, low cost upkeep, and high net revenue because of infrequent down-time. Even more remarkable is their efficiency score, written into the performance records of over 1001 cities everywhere.

When sloppy performance makes new meters mandatory on your city's streets, LOOK FOR THE BEST . . . get acquainted with industry's oldest and most-dependable manual or today's newest and only 100% automatic – by America's largest manufacturer of fine parking meters.

DUNCAN MILLER
MANUAL

DUNCAN AUTOMATON
AUTOMATIC

# THE RIGHT TO DECIDE!

*This is the basis of the Community-wide Garbage Grinder Plan suggested by WASTE KING Pulverator, America's Finest Garbage Disposer.*

In the American tradition, this Community-wide Garbage Grinder Plan offers the public the *right to choose* garbage grinders by type, brand, model and features that meet with individual preferences.

**HOW THIS PLAN AIDS THE PUBLIC OFFICIAL—**

Eliminates costly, unsanitary garbage removal methods.

Relieves burdensome liability of financing and selecting garbage grinders.

Makes funds available for other community projects.

**HOW THIS PLAN BENEFITS THE COMMUNITY—**

A higher standard of health, sanitation and safety are offered by adopting ordinances that require the installation of garbage grinders in new and existing dwellings and in all food-preparing and food-serving establishments.

Taxes are lowered—community health and beauty improved.

On the basis of free-selection by product and free-enterprise with local merchants and businesses, the community benefits!

**OVER 450,000 WASTE KING PULVERATORS IN DAILY USE!**

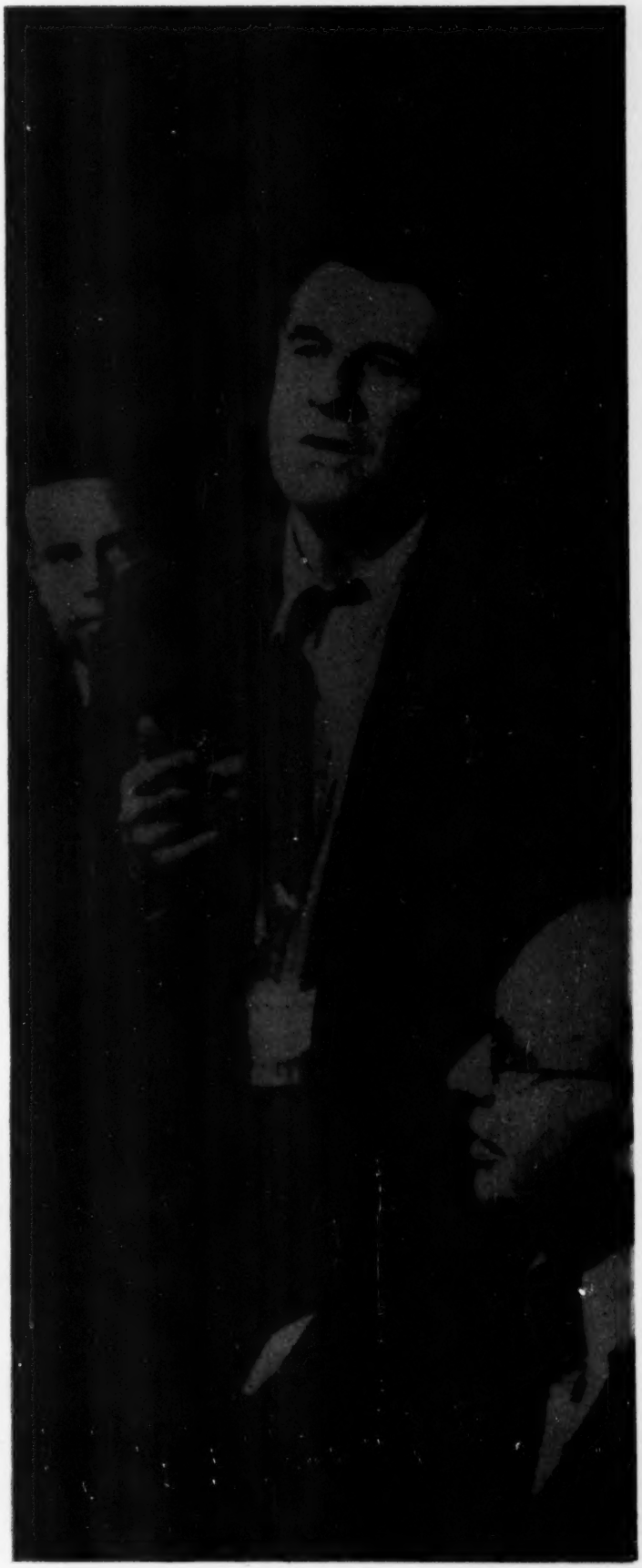
**FREE!**
*Your copy of the "Recommended Standard Garbage Grinder Ordinance." Write to:*

GIVEN MFG. CO. DEPT. AC-5
3450 WILSHIRE BLVD.
LOS ANGELES 5, CALIF.

Waste King KITCHEN PULVERATOR CONTINUOUS FEED

A Product by Given Mfg. Co., Los Angeles, Calif.

America's largest producer of garbage disposers for the Home and Food-Service Industry!



# "HYDRA-HAMMER"

*Meets Every Challenge With*

## Spectacular CONTROLLED Hydraulic Power

When Public Service of New Jersey decided on a new gas main for South Orange, it was imperative that the whole operation be completed as quickly as possible. Public Service chose Ottawa's HYDRA-HAMMER to break pavement in a hurry. Above you see HYDRA-HAMMER in action on South Orange Avenue. A single machine, a single operator handle the job. For your tough projects, those demanding speed with plenty of power, choose HYDRA-HAMMER. It gets the job done.

### CONCRETE BREAKER-BACKFILL TAMPER

**1. Jobs Are Faster, Easier, More Economical . . .**
with OTTAWA'S revolutionary self-propelled HYDRA-HAMMER operated by only one man!

**2. SAVINGS UP TO 50%**
. . . as adapting tools allow the HYDRA-HAMMER to make quick, easy work of such operations as backfill tamping, concrete breaking, asphalt cutting, post driving or filling, rock tamping, ice chipping and many others.

**3. Operates from 0 M.P.H. Up**
. . . with an infinite variety of creep speeds. Road speed 18 M.P.H. Powered by a 23 horsepower Wisconsin gasoline engine working with a Thomas hydraulic clutch drive and a Warner transmission.

**4. EASY TO OPERATE**
No skilled operators needed for this multi-purpose, self-propelled tool . . . any man able to drive a truck can learn to operate the HYDRA-HAMMER in an hour. The main hammer falls free, eliminating shock and high maintenance costs.

**5. SELF-PROPELLED**
This feature of the HYDRA-HAMMER enables it to get from job to job under its own power . . . no extra equipment or manpower such as tow truck and driver needed.

## *Unparalleled in Performance! Unparalleled in Service!*

*Write today for descriptive booklet. See how YOU can reap profits from the mighty OTTAWA HYDRA-HAMMER!*

Ottawa

**OTTAWA STEEL PRODUCTS, INC.**
OTTAWA, KANSAS

‡532

# Conventions—When and Where

**Conventions listed this month for the first time are indicated by an asterisk (*)**

***May 10-11—Montgomery, Ala.**
ALABAMA LEAGUE OF MUNICIPALITIES. Annual Meeting (Whitley Hotel). Exec. Dir., Ed E. Reid, 24 S. Hull St., Montgomery, Ala.

**May 10-15—Grand Rapids, Mich.**
AMERICAN WATER WORKS ASSOCIATION. Annual Convention with Exhibits (Municipal Auditorium). Sec., Harry E. Jordan, 521 Fifth Ave., New York 17, N. Y.

**May 11-12—Washington, D. C.**
NATIONAL HOUSING CONFERENCE. Annual Meeting (Hotel Statler). Exec. Vice-Pres., Lee F. Johnson, 1129 Vermont Ave. NW., Washington 5, D. C.

**May 12-14—Boston, Mass.**
AMERICAN PUBLIC POWER ASSOCIATION. Annual Meeting (Sheraton Plaza). Gen. Mgr., Alex Radin, 1757 K St. NW., Washington 6, D. C.

**May 14—New York, N. Y.**
CONFERENCE ON INSTRUMENTATION IN WATER, SEWAGE AND INDUSTRIAL WASTE TREATMENT (Manhattan College). For information, write Brother Joseph McCabe, Civil Engineering Department, Manhattan College, 242nd St. and Broadway, New York, N. Y.

**May 18-22—Chicago, Ill.**
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting (Palmer House). Gen. Mgr., Percy Bugbee, 60 Batterymarch St., Boston, Mass.

**May 20-22—New York, N. Y.**
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Meeting (Hotel Martinique). Sec., Edwin J. Clark, Box 271, Wayne, Pa.

**May 20-22—Omaha, Nebr.**
NATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Meeting (Hotel Fontenelle). Pres., Arthur J. Shinners, Town Hall, Brookline 47, Mass.

**May 24-27—Los Angeles, Calif.**
NATIONAL ASSOCIATION OF PURCHASING AGENTS. Annual Meeting (Hotel Statler). Sec., Eugene A. Gump, State Purchasing Agent, Lansing, Mich.

**May 25-28—Baltimore, Md.**
AIR POLLUTION CONTROL ASSOCIATION. Annual Meeting (Lord Baltimore Hotel). Exec. Sec., Robert T. Griebling, 4400 Fifth Ave., Pittsburgh 13, Pa.

**May 27-29—Philadelphia, Pa.**
PENNSYLVANIA STATE ASSOCIATION OF BOROUGHS. Annual Meeting (Bellevue Stratford). Sec., H. F. Alderfer, The Capitol, Harrisburg, Pa.

**May 31-June 4—Miami, Fla.**
MUNICIPAL FINANCE OFFICERS' ASSOCIATION of the United States and Canada. Annual Conference on Municipal Finance (Hotel McAllister). Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

**May 31-June 5—Cleveland, Ohio**
NATIONAL ASSOCIATION OF SOCIAL WORK. National Conference of Social Work. (Hotels Cleveland and Statler). Exec. Sec., Joe R. Hoffer, 22 W. Gay St., Columbus 15, Ohio.

**June 3-5—Peoria, Ill.**
CENTRAL STATES SEWAGE WORKS ASSOCIATION. Annual Meeting (Pere Marquette Hotel). Exec. Sec., A. P. Troemper, Illinois Sanitary Sewer Board, Springfield, Ill.

***June 4-5—Kansas City, Mo.**
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Conference. For information write U. S. CDC, care of George F. Arnold, President, City Hall, Columbus 15, Ohio.

***June 4-5—Laconia, N. H.**
NEW ENGLAND SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Laconia Tavern). Sec.-Treas., 331 State Office Bldg., Providence, R. I.

**June 5-6—Aberdeen, Wash.**
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting (Morck Hotel). Exec. Sec., Chester Biesen, 250 Smith Hall, University of Washington, Seattle, Wash.

**June 7-9—Memphis, Tenn.**
TENNESSEE MUNICIPAL LEAGUE. Annual Meeting (Peabody Hotel). Exec. Sec., H. J. Bingham, 228 Capitol Blvd., Nashville 3, Tenn.

**June 10—Martinsville, N. J.**
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Summer Outing and Inspection of Johns-Manville Research Center, Finderne. (Luncheon at Martinsville Inn.) Sec., C. B. Tygert, Box 178, Newark 1, N. J.

**June 10-12—Pueblo, Colo.**
COLORADO MUNICIPAL LEAGUE. Annual Meeting (Whitman Hotel). Exec. Dir., William A. Grelle, 327 Norlin Library, Boulder, Colo.

**June 12-13—Ocean City, Md.**
MARYLAND MUNICIPAL LEAGUE. Spring Session. Exec. Sec., Joseph M. Ray, Box 276, College Park, Md.

**June 11-13—Pocatello, Idaho**
IDAHO MUNICIPAL LEAGUE. Annual Meeting (Hotel Bannock). Exec. Dir., Robertson Smith, Center Bldg., Weiser, Idaho.

**June 11-13—Virginia, Minn.**
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Meeting (Hotel Coates). Exec. Sec., C. C. Ludwig, 15 University of Minnesota Library, Minneapolis 14, Minn.

**June 15-20—Vienna, Austria**
INTERNATIONAL UNION OF LOCAL AUTHORITIES. Eleventh Congress. For information write the Public Administration Service, 1313 E. 60th St., Chicago 37, Ill.

**June 17-19—Akron, Ohio**
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Meeting (Mayflower Hotel). Sec.-Treas., W. E. Conrad, 301 Ohio Department Bldg., Columbus 15, Ohio.

**June 17-19—Hershey, Pa.**
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Hershey Hotel). Sec., L. S. Morgan, Division of Engineering, State Department of Health, Greensburg, Pa.

**June 17-19—Long Beach, N. Y.**
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Lido Beach Hotel). Exec. Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

**June 18-21—Yellowstone National Park, Mont.**
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting (Old Faithful Inn). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

**June 25-27—Biloxi, Miss.**
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Meeting (Buena Vista Hotel). Exec. Sec., George L. Sugg, Electric Building Annex, Jackson, Miss.

**June 25-27—San Francisco, Calif.**
AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (Mark Hopkins Hotel). Exec. Sec., Perry L. Norton, Room 5-406A, 77 Massachusetts Ave., Cambridge 39, Mass.

**June 29-July 3—Atlantic City, N. J.**
AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Chalfonte-Haddon Hall). Exec. Sec., Robert J. Painter, 1916 Race St., Philadelphia 3, Pa.

**June 21-28—Philadelphia, Pa.**
PENNSYLVANIA ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Meeting (Bellevue-Stratford Hotel). Sec.-Treas., H. Fritschman, 2325 Darby Rd., Havertown, Pa.

**July 12-15—Boston, Mass.**
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Meeting (Sheraton-Plaza Hotel). Sec.-Treas., Keith L. Seegmiller, 1616 Eye St. NW., Washington 6, D. C.

**July 21-23—Syracuse, N. Y.**
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting. Exec. Sec., R. W. Morris, 515 W. Onondaga St., Syracuse, N. Y.

**July 27-29—Reading, Pa.**
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Meeting (Abraham Lincoln Hotel). Exec. Dir., Samuel Siegle, 420 State Theatre Bldg., Harrisburg, Pa.

**Aug. 10-12—Los Angeles, Calif.**
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Biltmore Hotel). Exec. Mgr., George W. Anderson, 292 Madison Ave., New York, N. Y.

***Aug. 10-12—Pittsburgh, Pa.**
PENNSYLVANIA STATE ASSOCIATION OF COUNTY COMMISSIONERS. Annual Convention (William Penn Hotel). Sec.-Treas., Herbert S. Bolder, Court House, Hollidaysburg, Pa.

**Aug. 17-21—Chicago, Ill.**
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (LaSalle Hotel). Sec.-Treas., L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio.

**Aug. 17-21—State College, Pa.**
PENNSYLVANIA SEWAGE WORKS ASSOCIATION. Annual Meeting (The Pennsylvania State College). Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

***Aug. 24-28—State College, Pa.**
PENNSYLVANIA WATER WORKS OPERATORS' ASSOCIATION. Annual Meeting (The Pennsylvania State College). Exec. Sec., R. Rupert Kountz, Professor of Sanitary Engineering, The Pennsylvania State College, State College, Pa.

***Sept. 1-5—Winnipeg, Man., Canada**
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Meeting (Hotel Alexandra). Sec.-Treas., Leonard N. Thompson, 216 Court House Bldg., St. Paul 2, Minn.

**Sept. 2-4—Ames, Iowa**
IOWA SEWAGE WORKS ASSOCIATION. Annual Convention (Iowa State College). Sec.-Treas., Leo Holtkamp, P. O. Box 310, Webster City, Iowa.

**Sept. 2-4—Mackinac Island, Mich.**
MICHIGAN MUNICIPAL LEAGUE. Annual Meeting. Exec. Dir., John H. Huss, 205 S. State St., Ann Arbor, Mich.

***Sept. 3-4—Morgantown, W. Va.**
AMERICAN WATER WORKS ASSOCIATION—West Virginia Section. Annual Meeting (Hotel Morgan). Exec. Sec., H. K. Gidley, Director, Division of Sanitary Engineering, State Department of Health, Charleston, W. Va.

**Sept. 9-11—French Lick, Ind.**
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Conference (French Lick Springs Hotel). Exec. Sec., Louis D. Brown, 30 Rockefeller Plaza, New York 20, N. Y.

**Sept. 9-12—Salt Lake City, Utah**
UTAH MUNICIPAL LEAGUE. Annual Meeting. Exec. Dir., Tom McCoy, Newhouse Hotel, Salt Lake City, Utah.

***Sept. 10-12—Saranac Lake, N. Y.**
COUNTY OFFICERS' ASSOCIATION OF THE STATE OF NEW YORK. Annual Summer Convention (Saranac Inn). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

*(Continued on page 173)*

# *LEADING EXPRESSWAYS of the NATION are MADE *SAFER* with HOLOPHANE Refractors

ATLANTA EXPRESSWAY: REFRACTOR LUMINAIRES using A-H1 mercury lamps, 110'-140' staggered. Approaches: 10,000 Lumen incandescent, 120' over center.

PENNSYLVANIA TURNPIKE—EASTERN TERMINUS: REFRACTOR LUMINAIRES using E-H1 mercury lamps, 150' opposite, Mtg. Ht. 30'.

PHILADELPHIA INDUSTRIAL HIGHWAY: REFRACTOR LUMINAIRES using E-H1 mercury lamps, 100' staggered, Mtg. Ht. 33'.

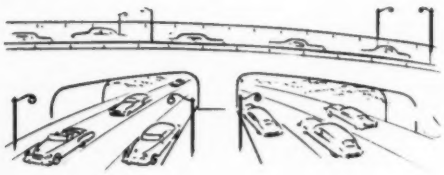
Top Photo: Courtesy of Georgia Power Company.

Center Photo: Courtesy of Westinghouse Electric Corporation.

Bottom Photo: Courtesy of General Electric Company.

***Some of the Great NEW Expressways Lighted with HOLOPHANE REFRACTORS:**

- THE SAN ANTONIO EXPRESSWAY
- THE DALLAS EXPRESSWAY
- THE ATLANTA EXPRESSWAY
- THE CONGRESS STREET EXPRESSWAY, CHICAGO
- EDENS PARKWAY, CHICAGO
- NEW JERSEY TURNPIKE (access areas, tollbooth areas, also bridges)
- PHILADELPHIA INDUSTRIAL HIGHWAY
- THE BOSTON EXPRESSWAY TO THE NORTH SHORE
- PENNSYLVANIA TURNPIKE (interchange areas)



• All over America a new type of heavily-traveled road connects important communities—the expressway or turnpike. These "throughways," permit above-average speeds and demand the newest and most effective lighting to reduce night-time dangers. It is a natural development that HOLOPHANE REFRACTORS provide the lighting for these prominent highways as well as for their access roads, tollbooth areas, viaducts and terminus points. HOLOPHANE REFRACTORS direct more light onto the roadway. Designed for more effective distribution they place the light where it is needed to produce maximum visibility. They assure savings in installation and maintenance costs.

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THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

# *Conventions—When and Where*

(*Continued from page* 139)

**Sept. 13-15—Richmond, Va.**
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Meeting (John Marshall Hotel). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Va.

***Sept. 13-17—Detroit, Mich.**
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Hotel Statler). Exec. Sec., Edward J. Kelly, 1424 K St. NW., Washington 5, D. C.

**Sept. 14-16—Washington, D. C.**
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Meeting (Mayflower Hotel). Exec. Dir., Charles S. Rhyne, 730 Jackson Pl. NW., Washington, D. C.

***Sept. 14-17—New York, N. Y.**
ILLUMINATING ENGINEERING SOCIETY. Annual Meeting (Commodore Hotel). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

**Sept. 15-17—Pierre, S. D.**
LEAGUE OF SOUTH DAKOTA MUNICIPALITIES. Annual Meeting (St. Charles Hotel). Sec., R. D. Falk, University of South Dakota, Vermillion, S. D.

**Sept. 15-18—Toronto, Ontario**
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Royal York Hotel). Gen. Mgr., James E. Jagger, 22 E. 38th St., New York 16, N. Y.

***Sept. 17-18—Indianapolis, Ind.**
AIR POLLUTION CONTROL ASSOCIATION—East-Central Section. Annual Meeting (Severin Hotel). Exec. Sec., J. G. Mingle, Superintendent of the Bureau of Air Pollution Control, Room 8, City Hall, Indianapolis, Ind.

**Sept. 20-24—Los Angeles, Calif.**
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Meeting (Hotel Statler). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

**Sept. 20-27—Montreal, Canada**
U. S. CONFERENCE OF MAYORS AND CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES, Joint Meeting. International Municipal Congress. Exec. Dir. of U. S. Conference of Mayors, Paul V. Betters, 730 Jackson Pl. NW., Washington, D. C. Exec. Dir. of Canadian Federation of Mayors and Municipalities, George S. Mooney, Mount Royal Hotel, Montreal 2, Quebec, Canada.

**Sept. 22-23—Santa Fe, N. M.**
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting (La Fonde Hotel). Sec.-Treas., George J. Turre, Box 600, Denver, Colo.

***Sept. 22-24—Gilbertsville, Ky.**
KENTUCKY MUNICIPAL LEAGUE. Annual Meeting (Kentucky Dam Village State Park). Exec. Sec.-Treas., Carl B. Wachs, McVey Hall, University of Kentucky, Lexington, Ky.

***Sept. 22-24—Rapid City, S. D.**
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Meeting (Alex Johnson Hotel). Sec.-Treas., Charles E. Carl, Division of Sanitary Engineering, State Department of Health, Pierre, S. D.

***Sept. 23-24—Omaha, Nebr.**
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Meeting (Paxton Hotel). Exec. Sec.-Treas., C. E. Beals, 303 Continental Bank Bldg., Lincoln, Nebr.

***Sept. 27-29—Excelsior Springs, Mo.**
MISSOURI WATER AND SEWAGE CONFERENCE. Annual Meeting (Elms Hotel). Sec.-Treas., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

**Sept. 28-30—Poland Spring, Maine**
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Convention with Exhibits (The Poland Spring House). Sec., Joseph C. Knox, 73 Tremont St., Boston 8, Mass.

***Sept. 28-Oct. 1—Buffalo, N. Y.**
INSTITUTE OF TRAFFIC ENGINEERS. Annual Convention (Hotel Statler). Exec. Sec., M. Mansfield Todd, Strathcona Hall, New Haven 11, Conn.

***Oct. 4-6—Springfield, Ill.**
ILLINOIS MUNICIPAL LEAGUE. Annual Convention. Exec. Dir., A. L. Sargent, IML, 537 S. Fourth St., Springfield, Ill.

***Oct. 5-8—Columbus, Ohio**
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Meeting (The Neil House). Sec., Irvin Shulsinger, 11 W. 42nd St., New York 17, N. Y.

***Oct. 7-8—Des Moines, Iowa**
LEAGUE OF IOWA MUNICIPALITIES. Annual Convention (Fort Des Moines). Exec. Sec.-Treas., Max A. Conrad, Jama Bldg., Burlington, Iowa.

***Oct. 11-15—Cleveland, Ohio**
ASSOCIATION OF SCHOOL BUSINESS OFFICIALS. Annual Meeting (Hollenden Hotel). Sec.-Treas., H. W. Anderson, 710 Kalamazoo Bldg., Kalamazoo, Mich.

***Oct. 11-15—Detroit, Mich.**
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Hotel Statler). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

**Oct. 13-16—Miami, Fla.**
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Convention with Exhibits (Municipal [Bayfront Park] Auditorium). Sec., W. H. Wisely, 325-26 Illinois Bldg., Champaign, Ill.

***Oct. 13-16—Milwaukee, Wis.**
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Annual Convention (Hotel Schroeder). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 15-16—Madison, Wis.**
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention (Loraine Hotel). Exec. Sec., F. N. MacMillin, 30 E. Johnson St., Madison 3, Wis.

***Oct. 18-20—Asheville, N. C.**
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Convention (Hotel George Vanderbilt). Exec. Sec., Mrs. Davetta Steed, 1009 Raleigh Bldg., Raleigh, N. C.

**Oct. 18-21—Houston, Texas**
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Convention with Exhibits (Rice Hotel). Sec.-Treas., Leslie A. Jackson, Robinson Memorial Auditorium, Little Rock, Ark.

***Oct. 18-21—San Francisco, Calif.**
LEAGUE OF CALIFORNIA CITIES. Annual Convention. Exec. Dir., Richard Graves, Hotel Claremont, Berkeley 5, Calif.

***Oct. 19-23—Chicago, Ill.**
NATIONAL SAFETY CONGRESS AND EXPOSITION. Annual Convention (Conrad Hilton Hotel). Gen. Sec., R. L. Forney, NSC, 425 N. Michigan Ave., Chicago 11, Ill.

**Oct. 20-23—Atlantic City, N. J.**
PENNSYLVANIA WATER WORKS ASSOCIATION. Annual Meeting (Chalfonte-Haddon Hall Hotel). Sec., David Dunlap, 504 N. 2nd St., Harrisburg, Pa.

**Oct. 22-24—Atlantic City, N. J.**
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Annual Meeting (Madison Hotel). Sec.-Treas., C. B. Tygert, P. O. Box 178, Newark, N. J.

***Oct. 25-27—Wichita, Kans.**
NATIONAL ASSOCIATION OF MUNICIPAL UTILITIES. Annual Meeting (Broadview Hotel). Sec.-Treas., E. P. Schowalter, Board of Public Utilities, Kansas City 16, Kans.

**Oct. 26-29—New Orleans, La.**
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Meeting (Municipal Auditorium). Exec. Dir., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

**Oct. 27-30—San Francisco, Calif.**
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (Palace Hotel). Sec., J. C. Luthin, 11113 Laurent St., Santa Cruz, Calif.

***Nov. 8-11—Cincinnati, Ohio**
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Convention (Netherland Plaza Hotel). Exec. Dir., Albert H. Hall, 730 Jackson Place NW., Washington 6, D. C.

***Nov. 8-12—New Orleans, La.**
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Convention (Jung Hotel). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

***Nov. 9-11—Richmond, Va.**
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Hotel Jefferson). For information, address Mason Gould, NML, 299 Broadway, New York 7, N. Y.

# Winners in National Register And Vote Competition

A LIST of the 18 states, 75 cities, and 144 counties that won top prizes for outstanding effort in support of the National "Register and Vote" drive last fall, is now available in mimeographed form from the American Heritage Foundation, 25 West 45th St., New York 36, N. Y.

A survey of competition entries made by the Foundation shows that over 2,200 were received from state, city, county, and community entrants. As a group, they led all others among business organizations, trade and financial associations, fraternal, lay-religious, veteran, labor, educational, and media groups in number of entries submitted.

The competition was announced as part of the National Non-Partisan Register and Vote Campaign, in which the Foundation supplied vote materials and acted as catalyst—directly and indirectly—for approximately 26,000,000 citizens who worked in the campaign. In the two months following the election last fall the Foundation received a grand total of more than 15,000 entries.

Winning states received their awards for the greatest percentage turnout of adults in the election. Utah and North Dakota led the nation. Other states were determined as regional winners. Two cities, Philadelphia and Cleveland, were designated national winners among cities and 73 cities were winners in their population category.

Thomas D'Arcy Brophy, president of the American Heritage Foundation, commenting on the winners, said, "The example set by our nation's state and local governments in urging citizens, as a first consideration, to exercise their vote in the election, can't help but be a healthy example of government in action for all Americans and especially for people around the world who look to us for leadership in the workings of a free government."

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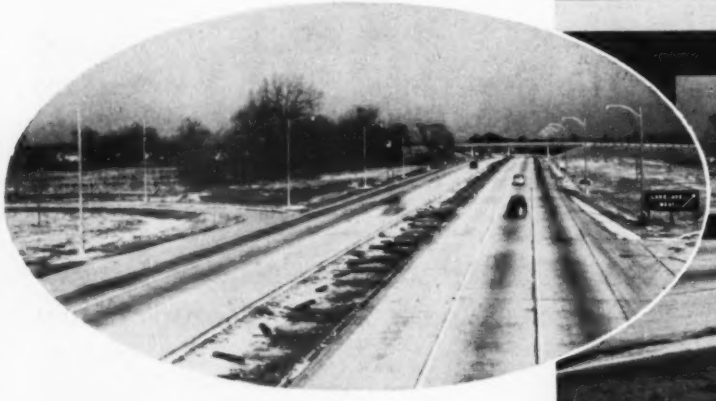

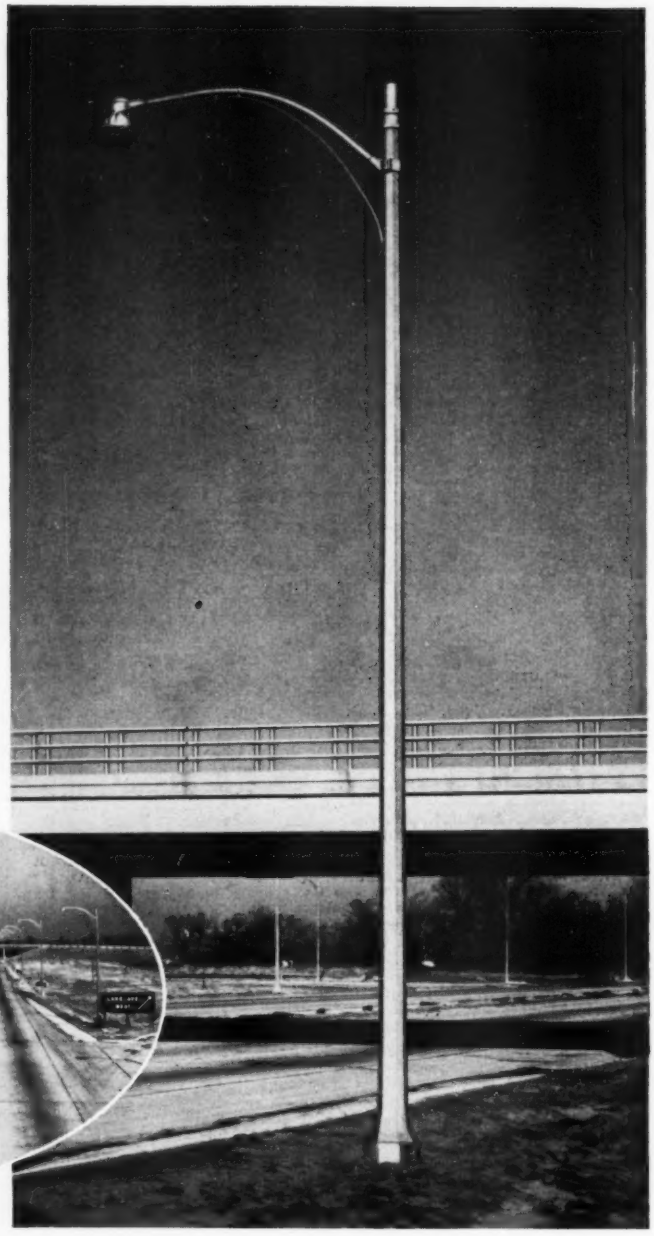

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# Municipal & Civic Publications

## 1,000 Pages of Municipal Help

MUNICIPAL INDEX, 1953—*Published by the American City Magazine Corp., 470 Fourth Ave., New York 16. "The Purchasing Guide for City Officials."* 1,000 *pp.* $5.

A new and special feature of the 27th annual edition consists of answers to over 170 practical questions asked by city officials. What is the best practical method of financing new pavement? What is the best way of eliminating red water? What is a fair method of financing the construction of a sewer system and a sewage-treatment plant? Has there been any change in the need or demand for incinerators? What is the effect of kitchen food-waste disposers on cesspools and septic tanks? Compare mercury-vapor and fluorescent lighting. What is a practical explanation of parking control? How can comparatively small cities get competent advice on traffic-signal installation? How may firemen be used on nonfire jobs? What are the values of equipping a small town's fire apparatus with emergency radio? What is a likely method of selling a city department or a city council on machine accounting?

Immediately following are 2,500 listings of manufacturers by the products they sell. Included, as usual, are the state maps and lists of all cities of 1,000 population or more. Also listed are the 1,103 city managers and the principal officials of all cities over 10,000 population, and the state highway officials. The "Where to Buy" feature is particularly inclusive, comprising not only the manufacturer indexing and cross-indexing but the catalogue and advertising of 316 manufacturers and sellers of municipal equipment, apparatus, devices, materials, and services for all the city departments supervised, operated, and maintained by the 17,000 officials receiving the *Municipal Index*. The professional cards of 150 consulting engineers and city planning consultants is another vital feature.

## Public Buying Article Available

SOME "REASONS WHY" IN PUBLIC BUYING—*By Irving Vichness. Reprinted from the January and February* 1953 *issues of* THE AMERICAN CITY. 6 *pp. Single copies free to readers of* THE AMERICAN CITY.

This two-part article on public buying discusses the need for regulation to protect both the public and the seller; legal aspects; methods of determining the lowest responsible bidder, and the necessity for adequate consideration of each case in order to avoid costly and unsatisfactory later court actions.

## Facts About Air Pollution

ATMOSPHERIC POLLUTION—ITS ORIGIN AND PREVENTION—*By A. R. Meetham, D.Sc. Pergamon Press, Ltd., 2, 3 & 5 Studio Place, Kinnerton St., London, S.W.1, England.* 1952. 268 *pp.* $4.90.

To provide a basis for consideration of the reduction of atmospheric pollution, the author has provided information about atmospheric pollution, its measurement, distribution, and effects; industrial processes; domestic requirements, and fuel-burning appliances. Remedial measures are recommended with notes on laws in England and America as they are concerned with air pollution.

## Town and Country Planning

MODERN TOWN AND COUNTRY PLANNING—A History of an Introduction to the Study of the Law and Practice of Modern Town and Country Planning in Great Britain—*By James W. R. Adams. Published by J. & A. Churchill Ltd., London, England. Available at the British Book Center, Inc., 122 E. 55th St., New York 22, N. Y.* 1952. 234 *pp. Illus.* $6.

The purpose of this book is expressed in the subtitle. The author's well-known father, Thomas Adams, published an earlier edition, *Recent Advances in Town Planning*, in 1932. The most important changes in the present volume relate to law and practice outside Great Britain. It is not intended that this book should function as a textbook for the study of any detailed aspect of law, design, or practice, but as a basic introduction to the complete study of the art and science of town planning with recent history, purpose, and future trends.

The scope of the book covers early phases of the town-planning movement, the objectives of the movement, law and practice in Great Britain, zoning regulations, open spaces, regional plans, neighborhood and site planning, and transportation. Experience in the United States as well as in Great Britain is included in the text and illustrations.

Those who are members of the planning profession, engineers, architects, economists, as well as those interested in building development, land use, public services, and the amenities of towns and cities, will find this book of value.

## Double Use of a Freeway

STUDY OF A TRUCK TERMINAL UNDER A FREEWAY—*By William H. Claire, Committee on Geometric Design Standards of Truck Terminal Facilities, Institute of Traffic Engineers. July* 1952. 29 *pp.*

Because freeways are taking a considerable portion of land and improvements off the tax-assessment rolls in urban areas, this study was undertaken to determine whether it is practical to make double use of the freeway. The proposed Olympic Freeway, to be located diagonally across a redevelopment project in Los Angeles, was selected for the study. A truck terminal under the freeway was chosen as an example of a double use. The design of the terminal, costs of the double use, and conclusions of the study will be of interest to municipal officials.

## Baltimore Public Housing Study Continued

A COMPARISON OF THE CHARACTERISTICS OF NEGRO APPLICANT AND TENANT FAMILIES, LOW-RENT PUBLIC HOUSING, BALTIMORE, MD., 1951—*Housing Authority of Baltimore City, 709 E. Eager St., Baltimore 2, Md. December* 1952. 28 *mimeo. pp.*

Like its companion study, *The Characteristics of Families in Low-Rent Public Housing in Baltimore*, reviewed in the February 1953 issue of THE AMERICAN CITY, this publication has been made possible through a cooperative research program with colleges and universities in the area. Under this plan senior and graduate students do the field work for the Authority. It is planned to make a similar study for white families in the near future. Twenty-two tables and seven charts contain the data on such aspects of the subject as type of families, income, size, number of minors, veterans, workers, project preferences, rents, and period of waiting for an apartment.

## Public Open Space in Subdivisions

PUBLIC OPEN SPACE IN SUBDIVISIONS—*Supplement to Planning Advisory Service Information Report, No. 46. Available only through subscription to the Service. Write to American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill.*

This supplement to the February 1953 report, "Public Open Spaces in Subdivisions," reviewed in the March 1953 issue of THE AMERICAN CITY, has been issued to make available some recently received significant additional data.

Included in the supplement are the provisions of one county's regulation of open space in subdivisions, which includes a description of the kinds of open space needed for good environment, and also provides for the subdivider to review his proposed dedication with the staff of the planning commission. Also included is the discussion of the idea of a recreational fund by which the subdivider may contribute to the fund an amount of money equivalent to approximately 5% of the value of the subdivision, rather than dedicate 5% of the land of the subdivision. The money thus collected from the subdividers is then to be used solely for the purchase and development of recreational areas within the community.

## Public Relations Bibliography

A SELECTED AND ANNOTATED BIBLIOGRAPHY OF PUBLIC RELATIONS—*By William A. Nielander. Bureau of Business Research, University of Texas, Austin 12, Texas. Bibliography No. 3 revised. September* 1952. 29 *pp.*

Starting with a list of general works on public relations, this bibliography goes on to catalogue publications under such headings as personal relations, labor, creditor, consumer or customer, stockholder, community, general public relations, advertising and sales promotion, trade, press, government, foreign, educational, societal, religious, and political relations, films and correspondence. The final lists include references for periodicals on public relations, and directories.

## City Pay Rates and Common Services

PAY RATES FOR SELECTED CITY JOBS IN JANUARY 1953—*Report 110 of Management Information Service. International City Managers' Association, 1313 E. 60th St., Chicago 37, Ill. Mar.* 1953. 22 *pp. Available only to subscribers to the Service.*

Summarizing questionnaire returns received from 93 cities on the pay changes made during 1952, this report gives data for 18 typical jobs. These positions are listed by cities which, in turn, are listed by geographic regions. The starting pay and top pay rates are shown for each of the 18 jobs, together with the number of hours in the work week and the number of days of paid vacation.

THE MANAGEMENT OF COMMON SERVICES—*Report 111. April* 1953. 7 *pp.*

The chief administrator of a city must see that the "common services" (those which all or most city departments must have in order to work properly) are provided. Common services here discussed, which can often be centralized advantageously, include building management, telephone service, files, mail and messenger service, printing and duplicating, maintenance of office machines, etc.

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## Local Government Accounting

IBM ACCOUNTING—LOCAL GOVERNMENT—*International Business Machines Corporation, Department of Information, 590 Madison Ave., New York 22, N. Y. 1953. 48 pp. Free.*

Tax accounting, financial administration, maintenance of voters' registration and personnel records, and indexing of permanent documents, such as deeds and mortgages, are discussed in this new booklet.

Regardless of differences in the details of real-property-tax accounting, for example, there are four fundamental steps: maintenance of records of property to be taxed; application of a rate against the assessed valuations to arrive at the amount of tax for each property; production of a tax roll, tax bill, and receipt, and recording of tax payments and distribution of tax receipts. The booklet describes the general principles applying to any real-property-tax application and personal property, salary, and other local taxes can be handled in a similar manner.

The second section discusses some of the services rendered by local government. In the field of public safety, for instance, comprehensive records of accidents, crimes, and property losses provide history and experience to develop programs for accident prevention, control of crime, and a reduction in loss of lives and property. Also discussed are public-assistance, public-utilities, public-works, and public-health accounting.

## Proposals for Light Industrial Districts

REDEVELOPMENT FOR LIGHT INDUSTRY — *By Shirley K. Werthamer and Newell B. Landes. Special publication No. 6 for subscribers to Redevelopment Information Service, NAHO publication N 335. National Association of Housing Officials, 1313 E. 60th St., Chicago 37, Ill. February 1953. 13 pp. $2.50.*

A study was made in Yonkers, N. Y.,* to determine the real reason for the location of marginally located firms and whether or not they would be willing to pay economic rents for better space if it were available. The results of this survey are presented in this report along with recommendations for light industrial districts.

* See THE AMERICAN CITY for April 1952 and October 1951.

## Public Opinion Survey in Kalamazoo

PUBLIC OPINION SURVEY CONCERNING MUNICIPAL SERVICES IN KALAMAZOO — *Conducted by the Kalamazoo Social Science Research Group. Under direct supervision of Dr. Leonard C. Kercher, Dr. Raymond L. Hightower, and Samuel V. Bennett. February 1953. 18 pp. Free copies may be obtained from The W. E. Upjohn Institute for Community Research, 709 W. Westnedge Ave., Kalamazoo 44, Mich.*

This report of a public opinion survey concerning municipal services in Kalamazoo, Mich., describes the techniques used in conducting the survey, tabulates the answers given by the citizens of Kalamazoo, and summarizes the findings. Details of the report appear on page 127 of this issue.

"While the results as such have only a local interest," says Mr. Bennett, "the questions raised, and the use of a scientifically prepared sample of dwelling units as a basis for getting community-wide reactions on problems of some concern to a community, are aspects of the study which may be of interest to other municipalities."

## Michigan Municipal Wage Data

1953 MICHIGAN MUNICIPAL WAGES AND SALARIES, Information Bulletin No. 68—*Published by the Michigan Municipal League, 205 South State St., Ann Arbor, Mich. March 1953. 113 pp. $3.50.*

The Wage and Salary Bulletin has been revised for this 1953 edition to present a more correct picture of geographical wage areas in Michigan. Almost always, the nearer an area is to Detroit, the higher the prevailing wage level will be; and here, for the first time, maps of each of the geographical wage areas have been included to aid in making comparisons. The data cover hours of work, overtime pay practices, and holiday pay practices of municipal employees in the 105 cities and villages having populations of over 4,000.

## Connecticut's Housing Program

HOUSING PROGRAMS OF THE STATE OF CONNECTICUT, A REVIEW, 1946-1952 — *Housing Division, Public Works Department, Hartford, Conn. 1953. 47 pp. Tables. Charts.*

This report explains how the Moderate Rental Home Ownership Programs and the Temporary Housing for Veterans Programs operate and what they have accomplished from 1946 through 1952. The legislative history of both programs is cited and statistics on public housing in Connecticut are presented in tabular form. The operation of both programs—including financing, eligibility, powers of the Local Housing Authority, and procedures for construction and management—are explained and illustrated by photographs of a number of the projects.


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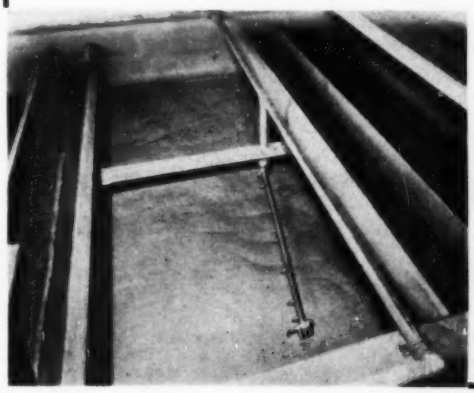

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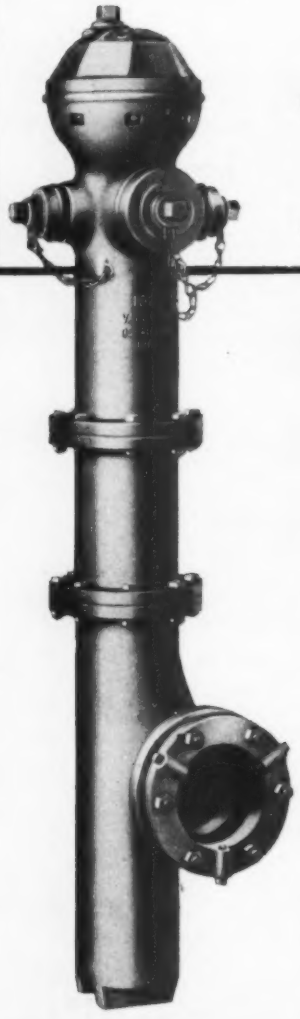

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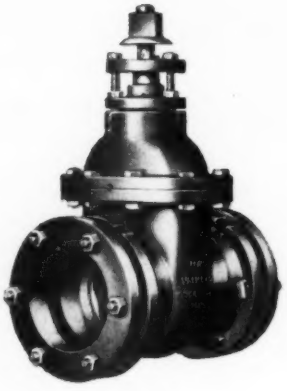

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## Standards for Shopping Center Stores

CRITERIA AND STANDARDS FOR SHOPPING CENTER STORES—*Planning Advisory Service Information Report No. 47. February 1953. 20 pp. Available only through subscription to the Service. Write to American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill.*

This report, the second of a series, discusses shopping centers with reference to store types—in particular the supermarket and department store. The first of the reports (No. 44, November 1952) discussed determination of population served, probable expenditures and breakdown of expenditures.

The greater part of the new report is devoted to the design economics, past, present, and future, of the supermarket and the department store in the shopping center. For supermarkets, for example, data are given showing such features as the distribution of store sizes throughout the country, the sales capacity of model-size supermarkets, the proportion of sales by department for one important West Coast supermarket, and shopping centers having more than one supermarket.

Following the discussion on department stores, the report discusses briefly the secondary stores in shopping centers, including drug stores, variety stores, etc. Finally, the report concludes with tables showing the store types in 44 shopping centers, the store sizes, and a selected and annotated bibliography emphasizing stores and store operation.

## Prefabricated Housing Studied

PRACTICES AND PRECEPTS OF MARKETING PREFABRICATED HOUSES—*Prepared by Professors Glenn H. Beyer and James W. Partner of Cornell. Published by Housing and Home Finance Agency, Washington 25, D. C. Nov. 1952. For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 63 pp. 35 cents.*

More than 40 manufacturers and 120 dealers in prefabricated housing were interviewed in gathering data for this study, conducted by the Division of Housing Research, HHFA, and the Housing Research Center of Cornell University. The statistical material in the first part of the report is based on the "sellers' market" conditions existing in 1950-51, and the study does not attempt to analyze the position of the industry in a period of possible depression. The section on Existing Marketing Practices describes retail outlets and problems, and manufacturers' problems such as degree of prefabrication and standardization, transportation, and storage. Section II is given to precepts for marketing prefabricated houses and a special supplement deals with defense and war implications on marketing the houses.

## Flood Problems Studied

FLOOD PROBLEMS IN SANTA CLARA COUNTY—*County of Santa Clara Planning Commission, Courthouse, San Jose 13, Calif. Monograph No. 3. 1952. 83 pp. $1.*

This report is one of a series dealing with problems that must be solved in developing Santa Clara County. It has been prepared in cooperation with the County Flood Control District. The information in Part I—the section on land inundation—has been obtained from various local sources and checked against aerial maps and flood conditions existing during the winter of 1951-52. Part II, contributing factors, deals with soil and subsurface drainage. The publication is freely illustrated with maps and with impressive pictures of floods and damage.

## TV Ordinances and Regulations

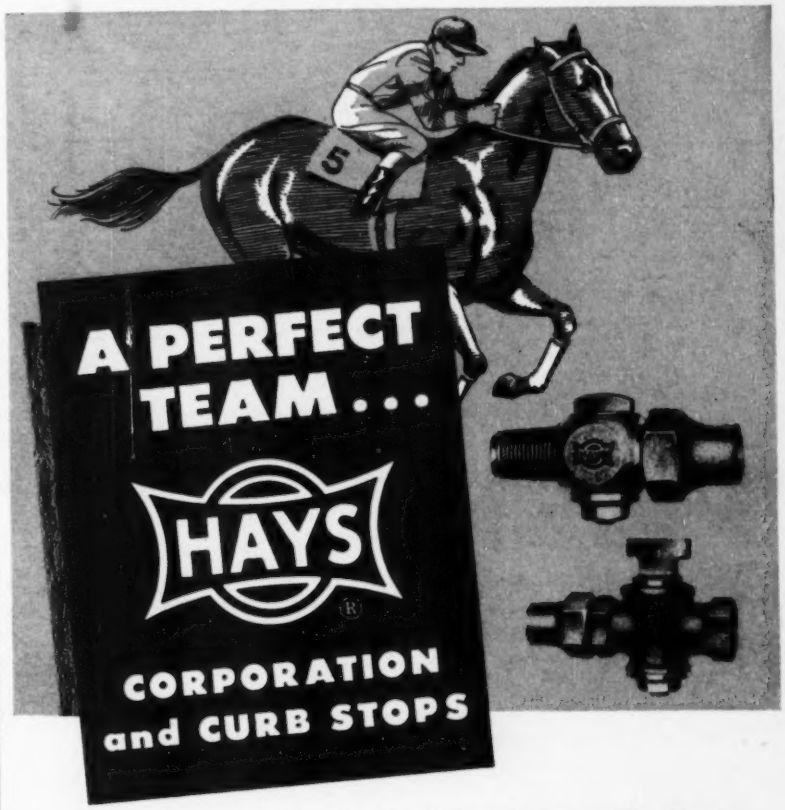
TELEVISION ORDINANCES, Washington Municipal Bulletin—*Published by the Association of Washington Cities in Cooperation with Bureau of Governmental Research and Service, University of Washington, Seattle 5, Wash. February 1953. 20 pp.*

Many city officials are recognizing the need for adopting some type of minimum standards in the field of television to protect the public from the hazards of faulty workmanship and installations. This bulletin includes several representative ordinances and regulations, and a statement of television installations prepared by the National Board of Fire Underwriters. There are also ordinances granting franchises for community television antenna systems, and television interference ordinances.

## Britain's Economy and Ours

BRITAIN'S ECONOMIC PROBLEM AND ITS MEANING FOR AMERICA—*Committee for Economic Development (CED), 444 Madison Ave., New York 22, N. Y. 1953. 52 pp. Single copies free.*

This Statement on National Policy explores the nature of Britain's economic problem and what it means to America and the entire Western world. It sets forth a number of recommendations for action. The statement has been under consideration for more than a year by this nonprofit, nonpolitical organization of businessmen and educators devoted to economic research and education.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## Municipal Retirement

TEXAS MUNICIPAL RETIREMENT SYSTEM, ANNUAL REPORT, 1952—*Prepared by John Van Cronkhite Associates. Available, without charge, from Dean Gorham, Director, Texas Municipal Retirement System, 508 Perry-Brooks Bldg., Austin, Texas.* 1953. 31 *pp.*

As required by the Texas Municipal Retirement Act, this report is prepared especially for the participating cities. But the preliminary picture tour of the System's headquarters in Austin makes it individually and personally appealing. The remainder of the report consists of an examination of the System's accounts, contribution rates of participating municipalities, and a question and answer section.

## Revised Lightning Protection Handbook

CODE FOR PROTECTION AGAINST LIGHTNING—*National Bureau of Standards Handbook 46. Available from the United States Government Printing Office, Washington 25, D. C. December* 1952. 91 *pp. 40 cents.*

This revised handbook, sponsored jointly by the National Fire Protection Association, the American Institutes of Electrical Engineers, and the National Bureau of Standards, aims to inform the public regarding proper installation of lightning-rod systems and about personal precautions. Protection for various types of buildings is discussed, as well as for spires, towers, silos, grain elevators, hangars, balloons, airships, trees, livestock, radio antennae, etc. Appendix A deals with the origin, characteristics, and effects of lightning and Appendix B contains a lengthy Bibliography of the subject.

## Low-Cost Quality Housing

COMMUNITY DEVELOPMENT WITH GUNNISON HOMES—*Gunnison Homes, Inc., New Albany, Ind.* 1953. 24 *pp.*

A pictorial review is presented in this booklet of the development of Fairless Hills, Pa., with Gunnison Homes. In addition, there are photographs of communities throughout the country which have been rapidly developed with these new homes of low cost and high quality.

## Big Government Analyzed

THE TREND OF GOVERNMENT ACTIVITY IN THE UNITED STATES SINCE 1900 — *By Solomon Fabricant. National Bureau of Economic Research, Inc.,* 1819 *Broadway, New York* 23, *N. Y.* 1952. 286 *pp.* $4.

As part of a large-scale study of basic trends in the American economy, supported by The Falk Foundation, the National Bureau of Economic Research releases this comprehensive analysis of what has happened in the scope and functions of government over the last 50 years. The author has treated the growth of government in perspective against the vast expansion of the entire American economy. He has found between 1900 and just before Korea the following increases in government's nonmilitary activities: government employment increased fivefold; government-owned capital assets increased fourfold; net sales made by business to government increased six times. Many of these increases, as well as such forces as the shift to an industrial economy, the increasing urbanization, the rise in family income, can be traced to one central cause —the vast increase in productivity that has occurred in the United States over the half century.

The trend of government efficiency, and possible encroachment by the government on private property are among the questions discussed. Those concerned with the growth of government should find the charts, statistics, and other data interesting, and Dr. Fabricant's analysis of these long-term factors rewarding.


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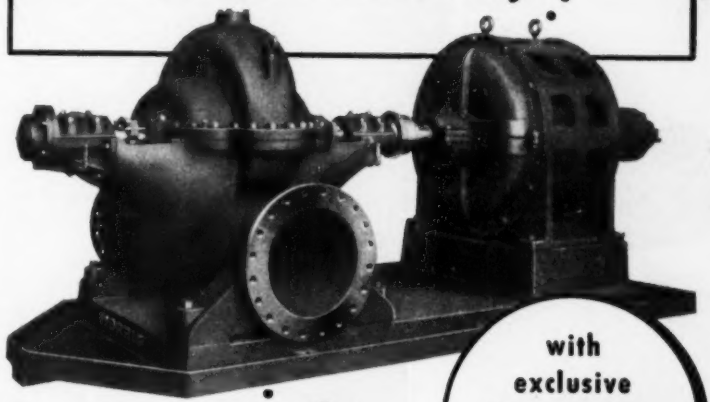

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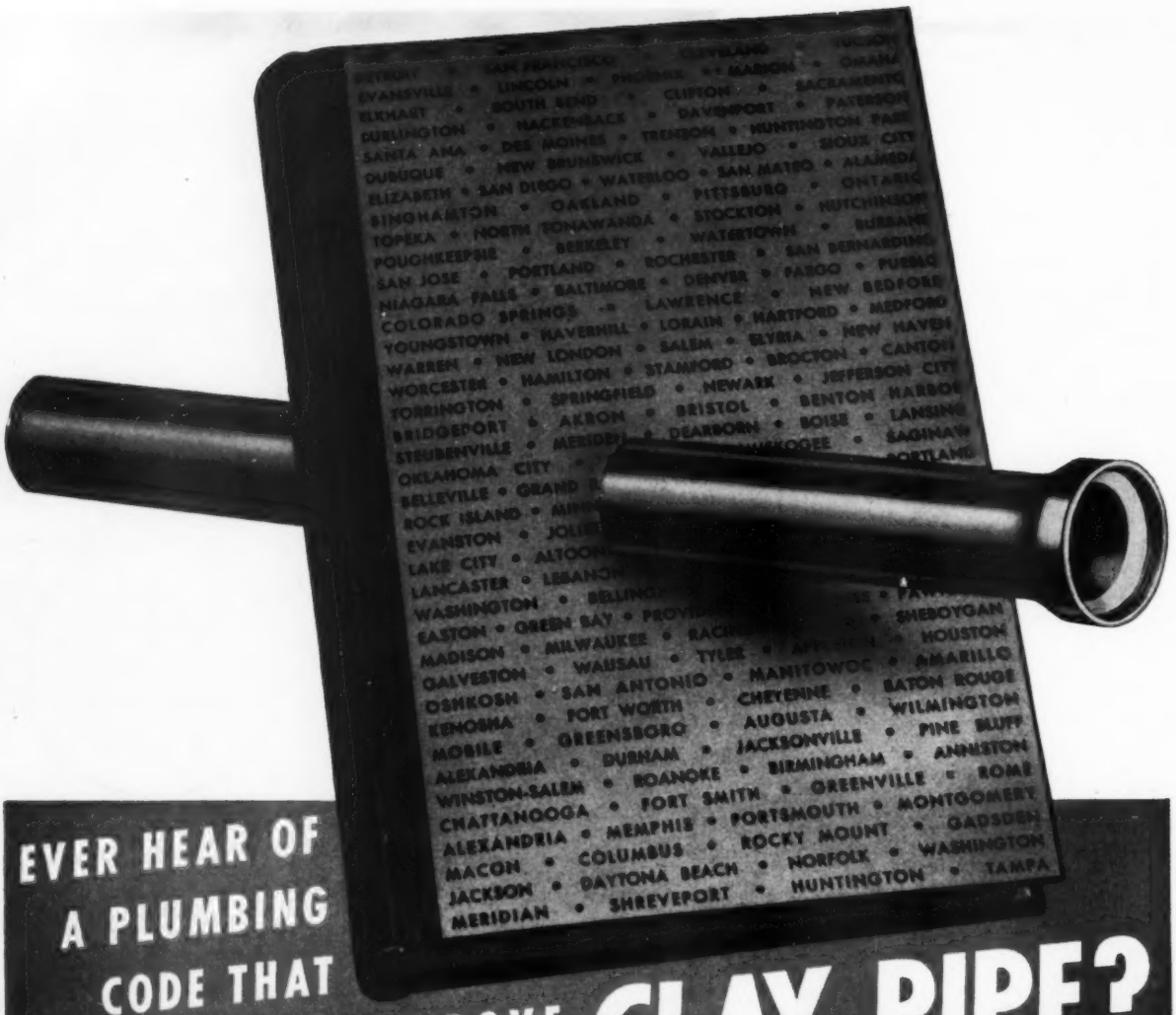
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## Ethics in Government

REPORT OF THE CITIZENS COMMISSION ON ETHICS IN GOVERNMENT, ARLINGTON COUNTY, VA.—*County Board, Arlington, Va. August* 1952. 45 *pp.*

Acting on instructions of the County Board, the Citizens Commission attaches to its report a Code of Public Ethics for county officials, and makes other recommendations. The commission warns that public ethics is everybody's business—not a ready-made thing prescribed by rules—and it urges people to acquire the habit of raising ethical questions. The code itself is meant to help officials and citizens alike to come to a better judgment about what is right and what is wrong in the exercise of public functions, including the conduct of political campaigns. It states, for instance, that the official's primary loyalty is to the citizens as a whole, rather than to any particular group or political party. It discusses, also, personal gain through public office, use of public information, avoiding obligations to grant favors, and the importance of personal example.

## World-Wide Population Distribution

DEMOGRAPHIC YEARBOOK, 1952—United Nations—*Statistical Office of the United Nations, Department of Economic Affairs. Published by the Columbia University Press,* 2960 *Broadway, New York* 27, *N. Y.* 1952. 518 *pp. Cloth,* $7.50; *paper,* $6.

The fourth in the demographic series, the 1952 Yearbook has nearly 400 pages of statistical tables, two introductory chapters, indexes, maps and a bibliography, and a compilation of current and retrospective population and migration data for every country having available figures.

According to the publication, the continued increase in city dwellers as opposed to farm dwellers may necessitate the development of a more elaborate and centralized system for distributing goods and services.

The statistical tables deal with the following aspects of the general subject: distribution by major civil divisions; urban and rural population, by sex; population of agglomerations or localities, classified by number of inhabitants; and the population of each city of 100,000 or more inhabitants and of each national capital or major administrative center. A chapter on urban trends and characteristics is also included.

A wealth of information on population data throughout the world is presented in this issue of the Yearbook.

## Today's Best Architecture in America

BUILT IN U. S. A.: POST-WAR ARCHITECTURE —*Edited by Henry-Russell Hitchcock and Arthur Drexler for The Museum of Modern Art. Distributed by Simon & Shuster, Inc.,* 630 *Fifth Ave., New York, N. Y.* 128 *pp.* 190 *plates.* $4.50.

American architecture has come to occupy a position of special prominence throughout the world. This publication shows examples of outstanding buildings completed from the end of the war to June 1952. It is noted in the Preface that not all buildings of quality and significance have been included, for the quantity of good buildings in the post-war years has been great. Plans and photographs of 43 buildings—including private houses, skyscrapers, schools, a hospital, a retail store, a chapel, and a stadium—are presented. Professor Hitchcock reviews the qualities that have brought buildings in America to a preeminent position in the world. The Curator of The Museum of Modern Art's Department of Architecture and Design, Arthur Drexler, has provided a critical text appraising individual buildings for their stature as works of art and for their significance in the development of American architecture.


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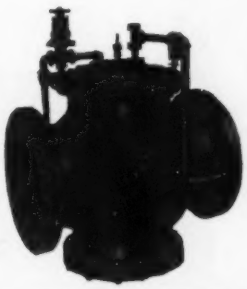

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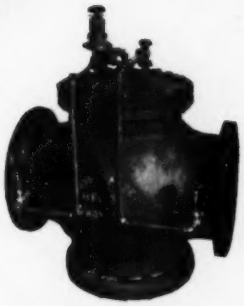

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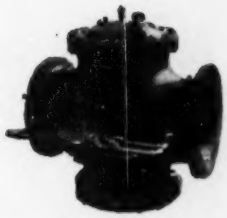

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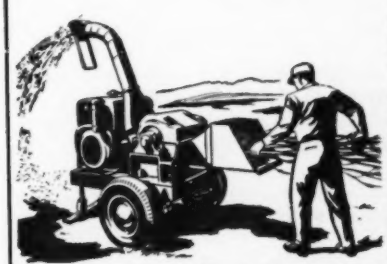

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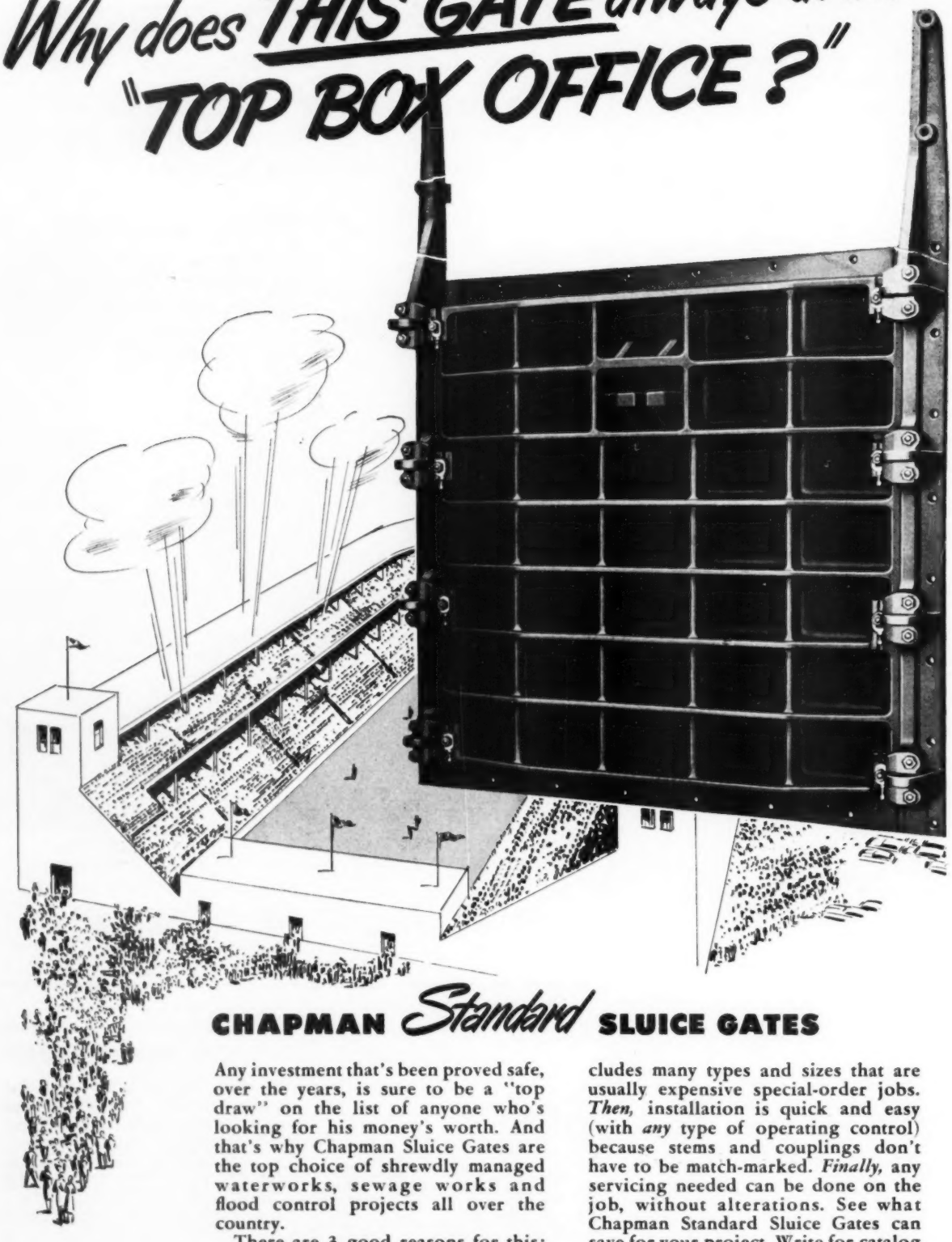

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## Another Boom Town

A CITY PLAN FOR GLENDIVE, MONTANA — *Summary and Conclusions. By S. R. DeBoer & Co., City Planning Consultants, 515 E. Iliff Ave., Denver, Colo.* 1952. 104 *pp.*

Specific recommendations to guide the future growth of Glendive, Mont., which has suddenly been transformed into a fast-growing city as a result of the discovery of large quantities of oil, are made by the consultants to the City Planning Commission of Glendive.

The study includes a brief history, population analysis, plans for transportation, streets, and civic improvements, analysis of the trade territory, review of climatic conditions, proposed locations for schools and public buildings, study of flood protection, discussion of city boundaries, sections on sanitation and health, and a summary including a program of action and public works.

*See also article on Glendive, page* 113 *of this issue.*

## Racine Public Library Surveyed

A SURVEY OF THE ADULT DEPARTMENT AND SERVICES OF THE RACINE PUBLIC LIBRARY, RACINE, WIS. — *By Stillman K. Taylor.* 1953. 26 *mimeo. pp.* $2.

This survey, authorized by the Library Board of the Racine Public Library, was conducted by the author over a five-day period. The various aspects of the Adult Department and other interrelated services covered include: registration, reference and information service, film service, and the phonograph collection. Book selection and discarding, various files (pamphlet, picture, etc.), and general arrangement of the library were among the other areas examined. A check list at the end includes 53 recommendations made by Mr. Taylor.

## Low Rent Housing In Asia

LOW RENT ASIAN HOUSING—*By J. W. Dark. Published by Orient Book Department, Printing House, Duddell St., Hong Kong, China.* 122 *pp.* $1.75.

An unusual, out-of-the-ordinary booklet written by an Englishman with extensive experience as a municipal engineer, a town planner, and a public-works foreman, and who has spent considerable time in the Orient. Basically, the book is a timely and much-needed corrective to the uncritical acceptance by Asian people of some of the chromium-plated aspects of Western civilization. The author has given special attention to Chinese customs and usages, and shows how a modernized version of the Confucian system of Ancestral Land can provide non-subsidized housing at lower rentals with higher standards of amenity.

## Public Works In New York City

ANNUAL REPORT, DEPARTMENT OF PUBLIC WORKS, THE CITY OF NEW YORK—*Report of Frederick H. Zurmuhlen, Commissioner of the Department of Public Works to Mayor Vincent R. Impellitteri.* 1952. 143 *pp. Charts, photographs.*

Commissioner Zurmuhlen reports that 1952 was the biggest construction year in the history of the Department of Public Works and its predecessor agencies. The Department was engaged on a construction program of $241,104,000. Twenty-nine projects vital to the health and welfare of the people of the City of New York were completed and put into service. Details on these and other projects under the jurisdiction of the Department are included in the report along with numerous photographs and charts.


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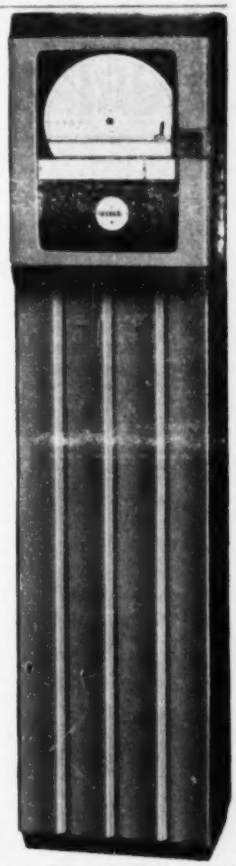

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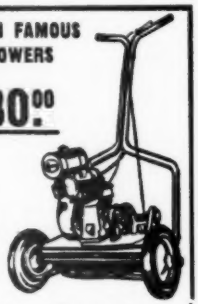

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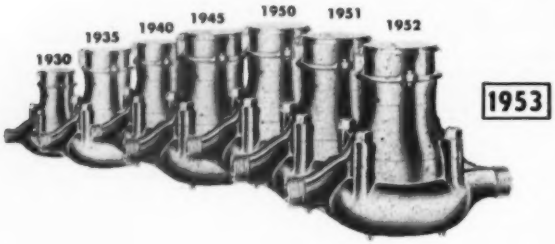


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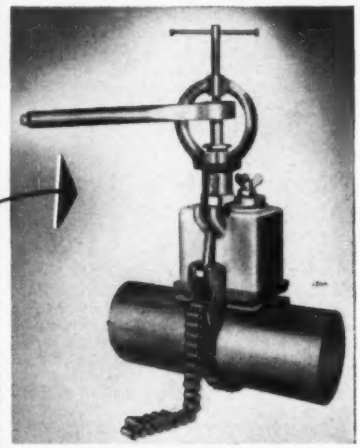

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## Two Handbooks for Kansas Officials

HANDBOOK FOR KANSAS PUBLIC IMPROVEMENTS, CITY-COUNTY-SCHOOL-TOWNSHIP — *By Albert B. Martin. The League of Kansas Municipalities, Capitol Federal Bldg., Topeka, Kans. December* 15, 1952. 272 *pp.* $20.

This second, revised edition of the Handbook (first edition, 1944) presents all the statutory authorities for any one type of public improvement in one article for ready reference. Assembled from the Kansas General Statutes of 1949 and the 1951 Supplement to the General Statutes, it covers the authorities for planning, financing, contracting, and construction of public improvements, public buildings, and public works in Kansas municipalities, counties, townships, and school districts.

Statutory authorities are annotated with supreme-court decisions and other explanatory matter useful to public officials, engineers, architects, etc.

HANDBOOK FOR CITY GOVERNING BODY: MAYOR-COUNCILMAN-COMMISSIONER OF CITIES OF THE THIRD CLASS. *The League of Kansas Municipalities, Capitol Federal Bldg., Topeka, Kans.* 1952. 104 *pp.* $3.

A copy of this Handbook is furnished to each new mayor, councilman, and commissioner of Cities of the Third Class and serves as a ready means of ascertaining their more common powers and duties.

## Pennsylvania Licensing Practices

MUNICIPAL LICENSING PRACTICES IN PENNSYLVANIA—*Bureau of Municipal Affairs, Department of Internal Affairs of the Commonwealth of Pennsylvania, Harrisburg, Pa.* 1952. 34 *pp.*

In preparing this publication on municipal licensing practices in Pennsylvania—particularly with respect to fees—the Department of Internal Affairs conducted a survey of all public subdivisions with populations over 5,000, except second class townships.

Part I of the booklet consists of digests of the information taken directly from the questionnaires.

Part II contains tables of those items which were reported by the majority of municipalities.

Amusement and entertainment, transients, food, peddlers, photographers, plumbers, gasoline, etc., are among the license provisions covered.

## Some Problems of the Port of New York Authority

THE WORK AND PROGRAM OF THE PORT OF NEW YORK AUTHORITY—*By Austin J. Tobin, Executive Director, before Tri-Conference Meeting of New York City Conference of Bank Auditors and Comptrollers, Savings Banks Auditors and Comptrollers Forum of the State of New York, and New Jersey Conference of Bank Auditors and Comptrollers, February* 10, 1953. 21 pp.

At the meeting here reported Mr. Tobin expressed his views on the critical need for a change in laws and law-enforcement methods in the bistate harbor. He also discussed the importance of good relationships between airports and their neighbors and said that "future transport planes, jet propelled or other types, must be so designed that they can fly in and out of congested metropolitan areas with no more noise or other disturbance than is reasonably tolerable to the communities surrounding the airports."

## Revised Milk Ordinance and Code

MILK ORDINANCE AND CODE, 1953 Recommendations of the Public Health Service —*Available from Superintendent of Documents, Government Printing Office. Washington* 25, *D. C.* 258 *pp.* 75 *cents.*

This revision of the milk ordinance and code, the first since 1939, incorporates advancements in the sciences of dairy technology. It includes provisions pertaining to the eradication of brucellosis from dairy herds and new methods for cleaning and bactericidal treatment of milk-processing equipment. It is anticipated that the new edition will be adopted even more widely than the previous edition, on which 34 states, 397 counties, and 1,550 municipalities have based their regulations and legislation.

## Financing N. J. Public Employees' Pensions— A Handbook for Citizens

PUBLIC PENSION PRIMER, *A Handbook for New Jersey Citizens—Published by the New Jersey State Chamber of Commerce, 605 Broad St., Newark, N. J.* 1953. 20 *pp. Available upon request.*

The problem of providing for the retirement of state and local employees in New Jersey involves present and future commitments of many millions of dollars. This graphically illustrated report put out by the state chamber of commerce will give the reader an insight into the scope of the problem, as well as some suggestions for retaining necessary coverage while reducing the cost by eliminating certain practices.

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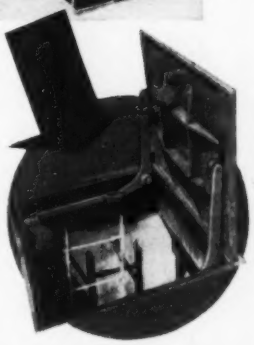

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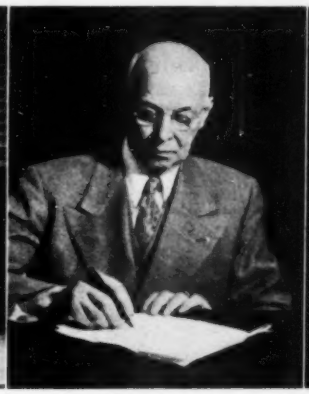
SANTA CLARA, CAL., 619 Alviso Road

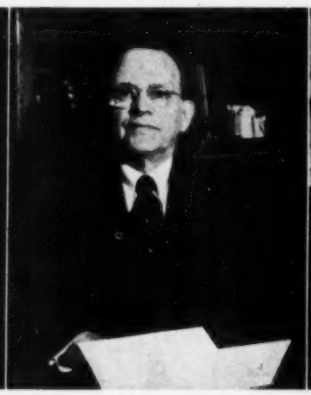
# Municipal Purchasing News

**Information for officials interested in equipment and services for the construction, operation, and maintenance of municipal utilities**

F. M. Farmer



W. F. Little



L. J. Lewison

N. D. Macdonald

## ETL's New Officers

F. Malcolm Farmer retired as president on March 31, 1953, after nearly 50 years of continuous service with Electrical Testing Laboratories and its successor, Electrical Testing Laboratories, Inc., 2 East End Ave., New York 2, N. Y. He has been elected honorary chairman of the board of directors.

The three new officers elected on March 25 have served their important organization a total of 147 years.

William F. Little, the new president, was vice-president and engineer of photometry and has been identified with the lighting field since 1903. He is the designer of the IES portable lamp and of further developments which have been marketed under the name of "Certified" lamps. In 1930 he became president of the Illuminating Engineering Society, and he received the Society's Gold Medal Award in 1950.

Leonard J. Lewinson started his connection with Electrical Testing Laboratories in 1905 as engineer of Lamp Life Tests. He has aided in the development of incandescent and fluorescent lamp specifications, and in the standardization of tests of lamps.

Norman D. Macdonald has been identified with Electrical Testing Laboratories since 1904, when he became inspector of high-voltage insulators. Later he became assistant to the president, the late Preston S. Millar, and in recent years he has been in charge of Certification Services, Advertising and Personnel.

## Concrete River Weights Submerge Large Pipe Line

Production of one of the largest river weight orders on record has recently been completed by Universal Concrete Pipe Company. The order involved more than 3,000 sets of reinforced concrete river weights for Ford, Bascom & Davis, Inc., agents for the Algonquin Gas Transmission Co., East Hartford, Conn.

Varying in size from 27-in. inside diameter to 9⅝ in., the weights were used to submerge a pipe line carrying natural gas from Texas to Boston. Universal's contract covered weighting the line between Bernardsville, N. J., and Danbury, Conn. The 27-in. units, weighing 4,000 pounds per set, were delivered by truck to their installation sites along the line.

Universal's main offices are at 297 S. High St., Columbus 15, Ohio. Information on concrete pipe or river weights may be obtained through use of the Post Card on the colored page in this section. Circle No. 52.

## Appoint Dimond-Colloton New Distributor

Joy Manufacturing Co. has announced the appointment of Dimond-Colloton Equipment Co., 4257 N. 124th St., Milwaukee, as the distributor of Joy equipment for a major portion of the State of Wisconsin.

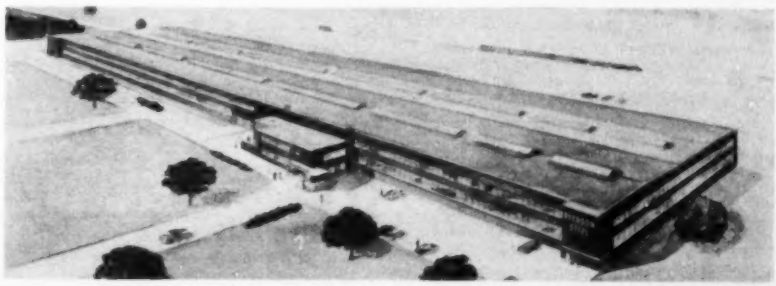
Located in the Oliver Bldg., Pittsburgh 22, Pa., The Joy Co. manufactures air compressors, wagon drills, hand-held drills, paving breakers, spaders, tampers and portable hoist. For information on any of these products write the manufacturer, or use the Post Card on the colored page in this section. Circle No. 37.

## Builds New Steel Service Plant

A steel service plant, scheduled for completion sometime next year, is now being constructed at South 84th St., Milwaukee, Wis., by Joseph T. Ryerson & Son, Inc. The new structure will replace Ryerson's present plant at 320 South 19th Street.

According to C. L. Hardy, president of the company, the plant will consist of two large building units and an office structure totaling some 166,000 sq. ft. of floor space. The building units will be heated to preserve and protect the finish of special-quality steels. New equipment for cutting and handling steel will be installed, including a powerful high-speed friction saw for cutting structural steel shapes, an electric-eye machine, and new plate-shearing equipment.

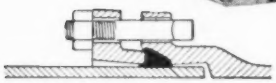
Information about Ryerson steel is available from the company. Write Joseph T. Ryerson & Son, Inc., at Milwaukee, or address one of the 14 plants nearest you. You may also use the Post Card located on the colored page in this section. Circle No. 26.



**Pictured is a drawing of the 800-ft. long steel service plant under construction in Milwaukee for Joseph T. Ryerson & Son, Inc.**

# For Faster Installations ...RAIN or SHINE

# CLOW
## Mechanical Joint
## Cast Iron Pipe, Fittings and Valves



**Clow Mechanical Joint**

A time-saving, easily installed mechanical joint cast iron pipe that reaches the job complete with all joint materials. Sizes 3″ to 24″ in 18-foot lengths.

It's always "fair weather" when you install Clow Mechanical Joint Cast Iron Pipe, Fittings and Valves. Even in a wet trench or under water, ordinary workmen can quickly do the job with ratchet wrenches. No calking needed. And once installed, this pipe line is set for a century or more of service. Each joint is sealed "bottle-tight" by a heavy molded rubber gasket—yet stays flexible to compensate for vibration, expansion or contraction. "Standardized" parts is another feature . . . glands, bolts and gaskets are completely interchangeable.

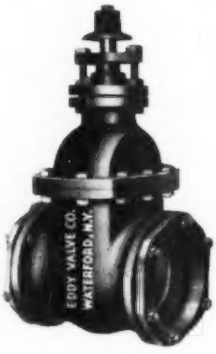
**CLOW MECHANICAL JOINT CAST IRON FITTINGS**

Mechanical Joint 90° Elbow

All types offered in straight and reducing sizes for use with Clow Mechanical Joint Cast Iron Pipe.

Mechanical Joint Tee

**SPECIAL FITTINGS**—Clow Foundries will produce special fittings promptly and accurately—to solve your unusual installation problem.




**EDDY MECHANICAL JOINT GATE VALVE**

Workmen can quickly install these valves, using just a ratchet wrench to make up the joints pressure-tight. Weather is not a problem—for no calking or lead melting is necessary. Available in sizes 3″ to 12″ for use on both centrifugally-cast and sand-cast iron pipe.

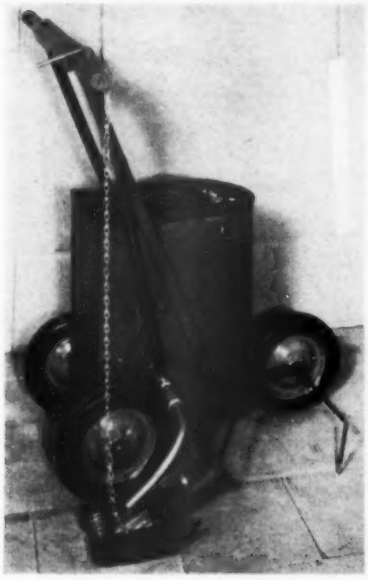
**JAMES B. CLOW & SONS**

201-299 North Talman Avenue • Chicago 80, Illinois

CAST IRON

and their National Cast Iron Pipe Division, Birmingham, Alabama; subsidiaries Eddy Valve Co., Waterford, New York; Iowa Valve Co., Oskaloosa, Iowa

## Straight Traffic Lines With This Marker



**Aeroil's Township Marker, with three-gallon capacity.**

Traffic line markers don't have to depend on either motors for spraying, or contact wheels for laying lines, says one manufacturer who has just developed a gravity-fed traffic line marker with a self-leveling spreader. The new Aeroil marker's sure feed eliminates all sources of mechanical trouble, while its flexible spreader lays down a clean cut line on roads with even the bumpiest surface.

Aeroil's Traffic Line Markers have no wheelbands, brushes, or other complicated mechanisms that get out of order. The operator has complete control of the line density from a control handle on the push bar. Even when full of paint, the manufacturer asserts, Aeroil Traffic Line Markers with their roller bearings and rubber-tired wheels, are light and easy to handle.

When using this new mechanism, the operator can forget all about the unevenness of the road, for the Aeroil spreader, designed with flexible rollers, drop plates and sensitive fingers, is scientifically adjusted to follow every variation of the road surface. A kerosene container keeps the spreader clean, eliminating the need for any brushing, blowing or scrubbing.

Aeroil Traffic Line Markers come in three sizes with a carrying capacity of from three to nine gallons of paint. All markers come complete with spreaders ranging in width from 2- to 8-in.

Aeroil Products Co., Inc., 69 Wesley St., South Hackensack, N. J., will supply full details. Write directly, or turn to the colored page in this section and use our convenient Post Card. Circle No. 1.


**WHY BUY**

**SEWER CLEANING EQUIPMENT**

- We will lend you equipment to maintain your sewers, at a charge generally less than the cost of your equipment upkeep.
- A completely equipped sewer department at your disposal, when you want it, with no equipment or supervisional problems.
- It is economical, and good business, to eliminate sewer trouble, by preventive cleaning.

**Thomas Drain Service**

Home Office - 35 S. College St., Akron 8, Ohio
Collect Phone Calls Accepted
Call BLackstone 2212 Akron, Ohio

**American Vacuum Leaf Loader**
**Solves your leaf or clean-up problem**

*Write for leaflet*
**LEAF LOADER DIVISION**
American Structural Steel and Tank Co.
21050 W. 8 MILE ROAD DETROIT 19, MICH.

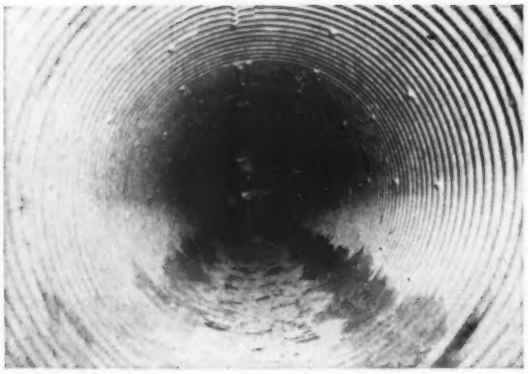
**3way dependability is built into ALL EDDY Fire Hydrants**

AVAILABLE WITH BELL CONNECTION (shown) or MECHANICAL JOINT CONNECTION with or without AUXILIARY VALVE

Since 1849 EDDY For Long Service

1. **IN CASE OF FIRE** — dependable, smooth operation . . . clear, large waterways . . . insure plenty of water. Hydrants open fast and easily *with* the pressure . . . and close without water hammer.
2. **IN CASE OF ACCIDENT** — stem held in place below main valve means no water loss due to a bent stem. One man can easily remove all operating mechanism for inspection or repairs.
3. **FREEZE PROOF** — Eddy's positive drip action automatically drains hydrant barrel of all water when hydrant is closed . . . safeguards hydrant against freeze-ups.

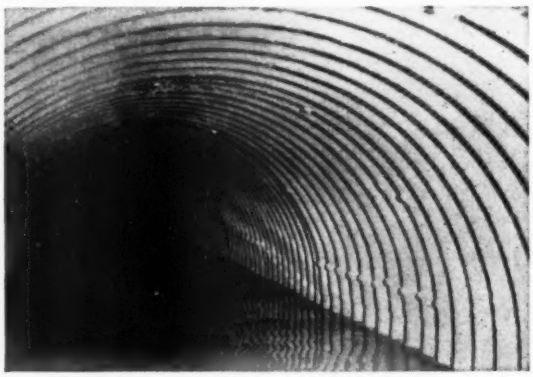
**EDDY VALVE COMPANY**
*A Subsidiary of James B. Clow & Sons*
WATERFORD, NEW YORK



This 36-inch diameter Armco Sewer was recently inspected in a mountain state city.

Large diameter Armco Sewer installed in a midwest city.

This Armco Storm Sewer in a midwest city is of 14-gage, 36 inches in diameter.



A large southern city installed this 30-inch diameter Armco Sewer Structure.

# Which sewer has been installed 46 years?

Hard to tell, even from these recent photos, isn't it?

Actually, you can't tell the age of an Armco Sewer just by looking at it. Armco Corrugated Metal Sewer Structures have an outstanding record for long, economical and efficient service.

But in case you are wondering, the Armco Sewer in upper left has been in service 36 years; in upper right, 23 years; in lower left, 46 years; and in lower right, 28 years. How close did you guess?

Long life is not the only advantage of Armco Sewer Structures: Corrugated metal design provides ample strength for any loading condition. Long lengths speed up installation. Sturdy coupling bands assure tight joints and a continuous conduit. Choice of protective coatings and pavements helps meet severe corrosion and erosion. Size and capacity problems are easily solved within the wide range of sizes and types of Armco Sewers. And unskilled labor can handle the job, saving money at every step.

Write us now for complete data on your specific needs. Armco Drainage & Metal Products, Inc., 1603 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. Export: The Armco International Corporation.

**ARMCO SEWER STRUCTURES**

ARMCO

## Holophane Company Territorial Changes

Holophane Co., Inc., Street Lighting Dept., Newark, Ohio, announces the following changes in territorial coverage: Daniel R. Donnelly, New York district manager, serving the Greater Metropolitan area in cooperation with Edward L. Gluck and Willard L. Warren; Robert W. Stanley, district manager in Connecticut and western Massachusetts, with headquarters in Hartford, and Adriaan Van Oss, district manager in Michigan, with headquarters in Detroit.

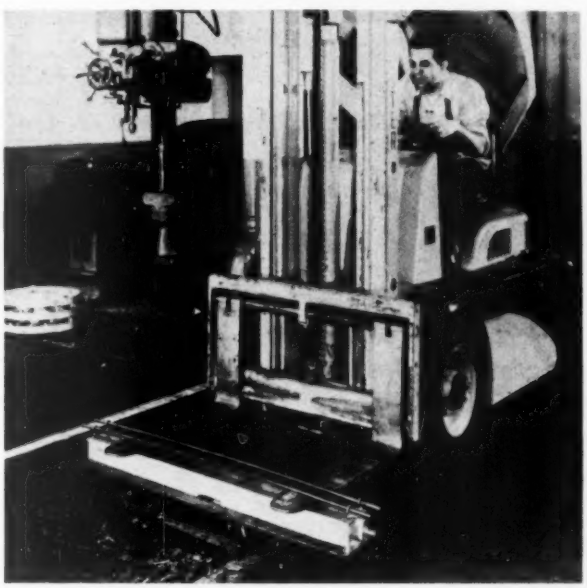
## Magnet Removes Nails from Roadways

A new magnetic road sweeper, designed to remove tacks, nails and other tramp iron from highways, parking lots, factory aisles and airports, has been developed by the Eriez Manufacturing Co., Erie, Pa. Called the Super-Sweeper, it can be pushed, pulled or suspended, and is made in three lengths and four widths: 24 in., 36 in., 48 in., and 60 in. sizes.

The handle of the Super-Sweeper has been fashioned of tubular steel which is easily removed for storage and transportation. A powerful Alnico V magnetic element will snap up and hold tramp iron which comes in its path, while a loop at the end of the steel handle can be attached to almost any trailer hitch.

According to Eriez, the new sweeper may be quickly adapted for use on industrial lift trucks by merely removing the wheels and handle and attaching with built-in eyebolts. The entire mechanism has a square aluminum cover, the ends of which are closed with sturdy aluminum castings. Attached to each side of the magnet's face is a stainless steel deflector which serves to prevent damage to the face if large objects are encountered. Each sweeper may be cleaned quickly by turning the magnetic face up with the handle and stripping metal accumulation from the canvas cover.

More detailed information may be obtained by writing the manufacturer, or turn to the colored page in this section and use the specially prepared Post Card. Circle No. 8.



**Super-Sweeper with wheels and handle removed is attached to industrial lift truck.**

Bronze Tablets...
By Cincinnati's Famous Metal Craftsmen
Memorials • Honor Rolls
Portrait Tablets • Signs
Markers • Name Plates
Tell us what you have in mind and we'll gladly submit suggestions.
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MEIERJOHAN • WENGLER
1102 W. 9th St. CINCINNATI 3, OHIO
HONOR ROLL

FISHER
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SUPERIOR PERFORMANCE AND QUALITY

49-E MIDGET LEAK DET.
ONLY $67.50

49-AB PIPE-FINDER
ONLY $149.50

LEAK SURVEY UNIT
49-C ONLY $275.00

*FREE 1952-53 CATALOG UPON REQUEST.*

Fisher Research Laboratory, Inc.
PALO ALTO
CALIFORNIA

# San Diego Prefers Concrete Pressure Pipe

Fast growing San Diego uses over 45,000,000 gallons of water each day, most of it supplied from reservoirs strategically located in the Incopah Mountain Range in back of the city. Concrete pressure pipe delivers nearly all this water to San Diego.

And San Diego continues to specify concrete pressure pipe. One of the latest installations was the Sweetwater extension to the San Diego aqueduct. Here, over 23,000 feet of 18-inch and 24-inch pipe was used to improve the water supply system.

Concrete pressure pipe provides maximum hydraulic capacity for extremely long periods of time. This, plus other outstanding advantages, such as immunity to rupture or blowout and the little or no maintenance required, make it important for every city to investigate its use for water conduit systems.

**ENGINEERING ASSISTANCE** is offered, without obligation, on any water or transmission problem. Write American Concrete Pressure Pipe Association for complete information.

*Water for Generations to come*

**Concrete PRESSURE Pipe**

**AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION**
228 North LaSalle Street
Chicago 1, Illinois

## New Electric Typewriter

Typewriters are attaining pulchritude as well as ever increasing ease and efficiency. "Eye appeal which commands correspondence attention is the aim of the newly-developed Underwood electric duplex carbon and fabric ribbon typewriter," says R. D. Hale, sales manager of the company's typewriter division. The duplex feature permits the use of either a carbon or fabric ribbon. The machine is suited for executive letters, reports, and master copy for photo offset, multilith or image reproductions.

**Electrified efficiency and beauty**

Literature is available from Underwood Corp., One Park Ave., New York 16, N. Y. Information may also be obtained by Circling No. 43 on the Post Card located on the colored page in this section.


LEADITE

The Pioneer Self Caulking Material for C I Pipe

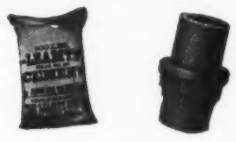


TABLE OF COMPARATIVE QUANTITIES

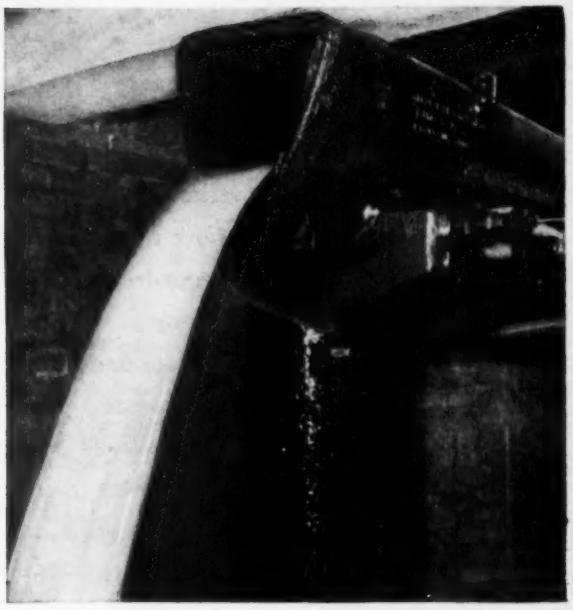
| Nominal inside dia. of pipe, in. | Depth of joint, inches of Leadite | Approx. lbs. of Leadite per joint | Depth of joint, inches of lead | Approx. lbs. of lead per joint |
|---|---|---|---|---|
| 4 | 2.5 | 2.00 | 2.25 | 8.56 |
| 6 | 2.5 | 3.00 | 2.25 | 11.71 |
| 8 | 2.5 | 4.00 | 2.25 | 14.63 |
| 10 | 2.5 | 5.00 | 2.25 | 17.70 |
| 12 | 2.5 | 6.00 | 2.25 | 20.86 |
| 14 | 2.5 | 7.00 | 2.25 | 24.02 |
| 16 | 2.5 | 8.25 | 2.25 | 33.07 |
| 18 | 2.5 | 9.25 | 2.25 | 36.88 |
| 20 | 2.5 | 10.50 | 2.25 | 40.71 |
| 24 | 2.5 | 13.00 | 2.50 | 53.02 |
| 30 | 2.75 | 16.00 | 2.50 | 65.36 |
| 36 | 2.75 | 19.00 | 2.50 | 77.96 |
| 48 | 3.50 | 30.00 | 3.00 | 121.15 |
| 54 | 4.0 | 38.00 | 3.00 | 135.60 |
| 60 | 4.0 | 42.00 | 3.00 | 150.70 |

THE LEADITE COMPANY

Girard Trust Co. Bldg., Philadelphia 2, Pa.

No Caulking





*For Accurate Measurement of*

RAW WATER, TRADE WASTES, SEWAGE

*Specify* SIMPLEX TYPE S PARABOLIC FLUME

Intelligent planning of industrial waste or sewage treatment facilities requires accurate flow data. Accurate control of processes and dosages are wholly dependent on accurate flow measurements.

Quite often, conventional types of primary devices can't answer this basic question because of adverse conditions such as: low flows under low head conditions; very wide flow ranges; heavy sediment or suspended solids; size, layout or grade of existing approach section; corrosive liquors in channels or pipes.

Simplex Type S Parabolic Flume was designed specifically to master *all* of these problems . . . accurately measures free-flowing wastes or sewage over a FULL 20 to 1 flow range!

Compact Type S Parabolic Flume is simple to install . . . requires a minimum of supporting structure, as shown in the above installation. Carefully machined levelling pins assure the correct grade for accuracy. No special approach section is needed.

Available in standard pipe sizes of 6" to 36", with bell, spigot or flanged inlet, Type S Parabolic Flume can be attached to even larger pipe sizes by means of eccentric reducers.

**INTERESTING FREE BULLETIN**

Why not get full details today. Write for Bulletin 800. Simplex Valve & Meter Company, 6789 Upland Street, Philadelphia 42, Pa.

IT'S SIMPLEX IT'S ACCURATE

SIMPLEX®

VALVE AND METER COMPANY

# Some new thinking on DENSITY in ASPHALT ROAD CONSTRUCTION

IN view of the fact that density under a screed or tamper varies with the thickness of material above the high or low spots in the subgrade, and in the presence of large stones in the mix, any approach to securing absolute uniformity in the thickness of a road from subgrade to surface would be an approach to uniformity in density. Obviously uniform thickness is the result of accuracy in grading and accuracy in spreading.

Here, for the first time, is a real approach to the ideal conditions required for absolutely uniform density and uniform thickness with a truly level course the full width and length of any road, from subgrade to surface.

The Adnun with the Fluid Level is not just a Black Top Paver! Not just a Material Spreader! With the Fluid Level the Adnun is a complete Road Builder! The Fluid Level makes it possible to begin with your properly graded subgrade and lay the base course of any material to an absolute plane the full width and length of the road. Successive courses of asphalt will be equally uniform. With uniformity of thickness in each successive course from subgrade to surface you have an approach to uniformity in density never before possible.

The Fluid Level takes out the dips that won't show under a straight edge. It brings long wheelbase results to an already compact, easily portable unit. It makes possible greater surface smoothness that results in better drainage and reduced breakdown. The possibility of holding error to within one or two percent, means less waste of material and cuts costs to the taxpayer and the loss for the contractor. Investigate this method of building roads. It brings you a long sought answer to better built, lower cost roads that will go far toward meeting today's traffic problems.

Ask for the booklet, "Put A Level On Your Roads", for more details.

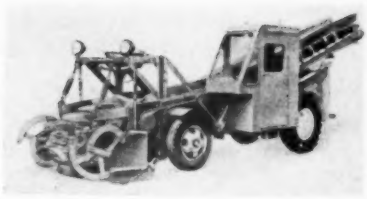
This little booklet entitled, "Put A Level On Your Roads", tells you all about the Fluid Level. If you haven't seen it, send for it.

ADNUN
TRADE MARK REGISTERED
BLACK TOP PAVER

BLAW-KNOX

FOOTE CONSTRUCTION EQUIPMENT DIVISION
OF BLAW-KNOX CO.
1904 State Street,
Nunda, New York

BLAW-KNOX



**Here the sideboards of the Bulldozer Moldboard-Auger Feeder are reversed for loading from windrow. When set as shown by the dotted lines, the attachment is ideal for loading from stockpile.**

## High-Speed Attachment For Loading, Stockpiling

Loading coal, gravel, crushed stone, dry chemicals, or other free flowing material, is simple when you use the Bulldozer Moldboard-Auger Feeder, made by the Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill. This new loading attachment, designed especially for use with Athey's Model 3 Force-Feed Loader will pour forth a constant stream of free-flowing rates of up to 10 cubic yards per minute.

Available either as original equipment on loaders shipped from Athey's factory, or as an attachment which can be installed on machines already in the field, this auger-type feeding mechanism includes a bulldozer type moldboard which extends across the loader to provide a 90-in. width of gather, and has positive hydraulic down pressure on reversible cutting edges.

Another, and very special feature of the Bulldozer Moldboard-Auger Feeder, are the side boards at each end of the moldboard which may be reversed for windrow loading, or set for loading from stockpile. When set for stockpile loading, the sideboards prevent material from building up before the front wheels.

Information on the Athey Force-Feed Loader or its valuable attachment is available from the company on request. Write directly, or use the Post Card on the colored page in this section. Circle No. 2.

## Wendell Kinney On European Trip

Wendell Kinney, vice-president of Standard Steel Corp., 5085 Boyle Ave., Los Angeles 58, Calif., sailed for Europe last March aboard the *Queen Mary*. Included in his itinerary are the Industries Fair at Birmingham, England, and the Belgium International Fair in Brussels.

Combining business with pleasure, Mr. Kinney is scheduled to survey new highway construction projects and developments among European processing industries. One of his plans is to negotiate licenses for Standard's line of Asphalt Plants and Rotary Dryers.


BETTER HOSE CARE—WITH

CIRCUL-AIR

THE AIR CONDITIONING

FIRE HOSE DRYER

Circul-Air is the patented, electrically operated hose dryer which circulates prewarmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. It's designed to lengthen hose life, improve the appearance and functional design of new fire houses, and to save floor space and hard work. No other drying method is so fast—so economical—so easy to use.

Circul-Air Dryers have passed the Approvals Tests and are listed by the Underwriter's Laboratories, Inc., Chicago and the Canadian Standards Association.

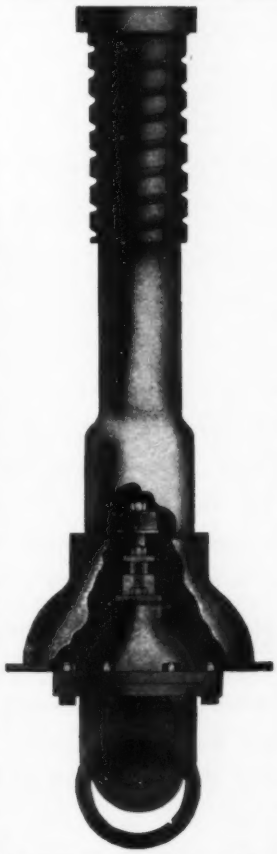
*Write for Catalog TODAY*

THE CIRCUL-AIR CORPORATION

575 East Milwaukee Detroit 2, Michigan

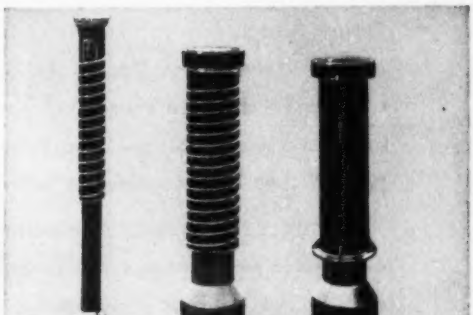


"BUFFALO" Valve Boxes, Meter Boxes, Manholes and Covers Are the "Standard of Comparison"



Yes, the long, trouble-free service given by "Buffalo" boxes, for both water and gas, have made them the industry's standard by which others are judged. Today's new, improved "Buffalo" designs are recognized as the country's finest—yet are interchangeable with the older Buffalo models.

**Whatever your needs—write, wire or phone to "Buffalo" first! Write Dept. J for Bulletin M11.**



Complete Gray Iron & Non-Ferrous Commercial Casting Facilities for all special municipal & industrial requirements! Quotations gladly given!

BUFFALO PIPE & FOUNDRY CORP.

BOX 55—STATION B DE. 6764 BUFFALO, N. Y.

# INCREASED INCINERATOR CAPACITY

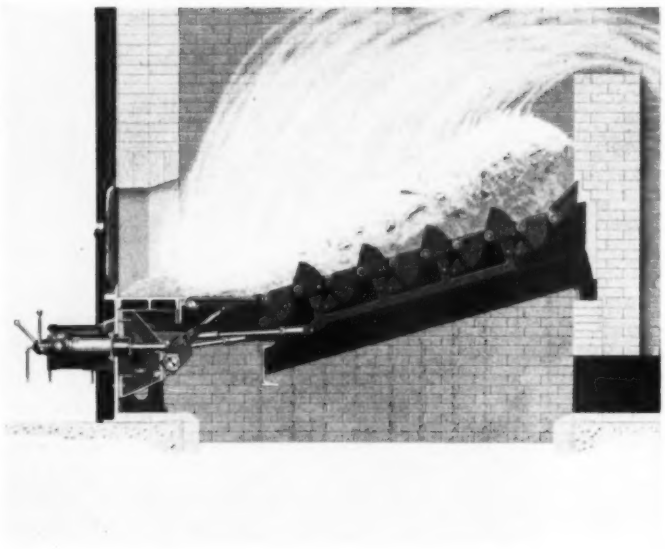
FOR

MUNICIPAL

AND

INDUSTRIAL

PLANTS



**THE INSTALLATION OF "F&E" INCINERATOR STOKERS IN YOUR PRESENT FURNACES OR IN PROPOSED NEW INCINERATOR PLANTS WILL MEAN UP TO 50% INCREASE IN BURNING CAPACITY AS COMPARED WITH THE MANUALLY STOKED TYPE OF INCINERATOR GRATES.**

Why? — The progressive burning method brought about by the "F&E" Incinerator Stoker and shown in the above illustration makes the above statement possible. The action of the stoker bars keeps the burning mass continuously broken up and progressively moving forward to the dump grates. The burning per square foot of grate surface is increased up to 50%. The fires are instantly cleaned by merely dropping the dump grates, thus high continuous furnace temperatures are maintained at all times.

Dollars are saved by meeting increased requirements without additions to your plant or additional buildings. Nuisances are eliminated by having stacks clear and free of odors. The labor is reduced by eliminating the customary tooling of fires. Down time for cleaning fires reduced to an absolute minimum. Troublesome clinkers eliminated.

WRITE US TODAY FOR DESCRIPTIVE LITERATURE.

## FLYNN AND EMRICH COMPANY

*ESTABLISHED 1842*

**HOLLIDAY & SARATOGA STS., BALTIMORE 2, MD.**

## Arizona's First Plastic Gas Main Installation

Tucson Gas, Electric Light & Power Co. has recently completed the first plastic gas main installation in Arizona using 2-in. transparent Kraloy O-125 plastic pipe, according to the manufacturer, Kraloy Plastic Pipe Co., Inc., 4710 E. Washington Blvd., Los Angeles 22, Calif.

Replacing 1½ miles of existing steel mains at Marana, Ariz., a Tucson suburb, the job of installing plastic pipe took some 1½ working days with two men laying about 1,000 ft. of Kraloy pipe per hour. This terrific speed was achieved by using a solvent cement which joined sections of the pipe in seconds and because of Kraloy's light weight, which enabled one man to carry up to 400 ft. of the 2-in. pipe.

Aside from being simple to handle, Kraloy pipe is chemically inert and will not rust or corrode. Because the plastic is a non-conductor of electricity, it is not subject to ground current electrolysis.

Further information on plastic pipe will be sent on request by the manufacturer, or you may use the Post Card in this section. Circle No. 20.

**An employee of Tucson Gas, Electric Light & Power Co., easily shoulders sixteen 20-ft. lengths of Kraloy plastic pipe.**

## Unique Plating Process Stretches Nickel Supply

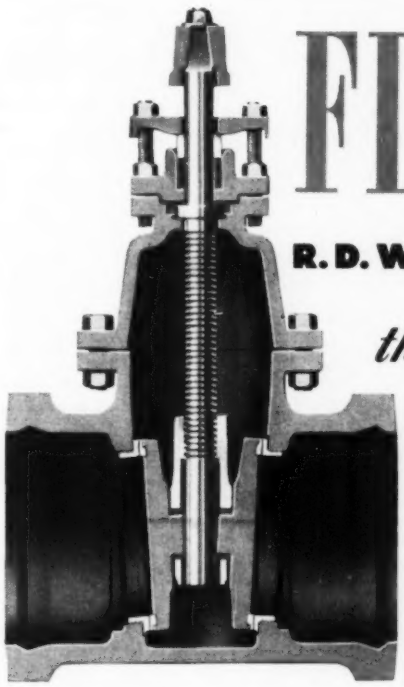
Officials of General American Transportation Corp., 135 S. LaSalle St. Chicago 90, Ill., recently announced the availability of an entirely new process of nickel plating which, they claim will greatly stretch our available nickel supply.

Named Kanigen, the new process, a nickel-nickel phosphide composition, requires no electrolytic equipment, and makes it possible to plate almost any solid substance with a dependable and predictable thickness of non-porous plate. Kanigen is reported so completely manageable, that it opens up vast new possibilities. Intricate valves and other products previously impossible to plate successfully, can be covered thoroughly; parts subject to hard wear and abrasion may be continuously coated and hardened far beyond the capacity of the parent metal, and parts that were machined of monel metal and other corrosion-resisting materials in the past can now be made of cast steel and plated to a thickness of 3 mils with assurance that the plate will nowhere vary from that thickness.

Using ⅓ to ½ the nickel required by other processes, Kanigen will plate any article uniformly, regardless of size or shape, and has proved satisfactory for the production-line plating of steel, copper, brass, bronze, stainless steel and aluminum. Tests on plastics and magnesium indicate that these materials will also prove practical for Kanigen plating.

In order to utilize this new plating process, General American will begin construction on two new plants, one in East Chicago, Ind., and the other in Los Angeles, Calif. While neither plant is expected to begin operation before the third quarter of this year, other firms will be licensed to use the process shortly thereafter.

Details about Kanigen may be obtained from the manufacturer or use the Post Card on the colored page in this section. Circle No. 12.

FIRST *choice*

R. D. WOOD GATE VALVES

*they* LAST

**Only three moving parts**—the spreader and two discs. In opening, the discs are lifted into the bonnet clear of the seats. In closing, they are wedged into place without distortion. Working pressure up to 175 lb. Tested to 300 lb. Rigidly inspected. Conform to AWWA specifications. Supplied with bell, flanged or mechanical joint pipe connections.

R. D. Wood Gate Valves are first choice with waterworks engineers because they are built to last . . . and last . . . and last. Made from seasoned castings, fully bronze mounted. Their simplicity of design gives generations of trouble-free operation.

150th *anniversary*

R.D.Wood

COMPANY

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

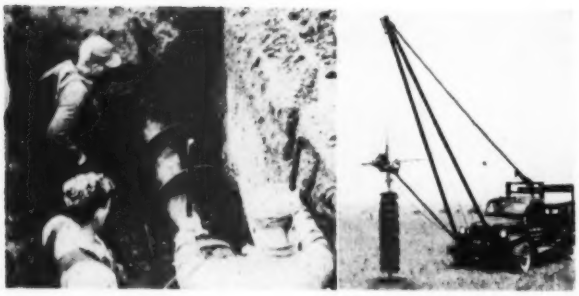
Manufacturers of Mathews Hydrants and "Sand-Spun" Pipe (centrifugally cast in sand molds)

# KA-MO

## SOLVES YOUR EARTH BORING PROBLEMS

*Easy to set up*

*Easy to operate*



**DRILLS A DRY, CLEAN, STRAIGHT HOLE**

under Streets—Highways—Alleys—Railroad beds, etc. for WATER, GAS, & SEWER MAINS up to 36" in diameter—with or without casing—WITH NO INTERRUPTION of TRAFFIC.

**POWERED BY**
**AIR—ELECTRICITY—GASOLINE or DIESEL ENGINES**

ALSO VERTICAL HOLES for fence posts, telegraph, telephone, & electric power poles—elevator shafts—soil testing—geophysical work, etc.

**For More Detailed Information Call or Write**

**KA-MO TOOLS, INC.**

**1845 South 55th Avenue, Cicero 50, Illinois**

**TOwnhall 3-8073**

**NEW FLORLINE**

**Street, Safety, Parking Lines**

**At Walking Speed . . . Now With Third Wheel Guide for Fast Straighter Lines At No Extra Cost!** **$97.50** F.O.B. Detroit

Communities coast to coast are cutting maintenance costs of traffic and parking lines with FLORLINE. The new third wheel, 18" forward of carriage, keeps machine "in line" long before marking begins. Guide wheel arm automatically folds back at curb, lets machine mark right up to barriers. 1 man, 1 hand operation. No attachments. Gravity feed. Makes curved, straight, continuous or skip lines, 2, 3, or 4" wide with interchangeable carriages. Holds 1½ gals. paint, lacquer, whitewash. Cannot spill. Portable, easy to clean and store. FULLY GUARANTEED.

**H. C. SWEET CO.**

**24396 West 7 Mile Rd. Detroit 19, Mich.**



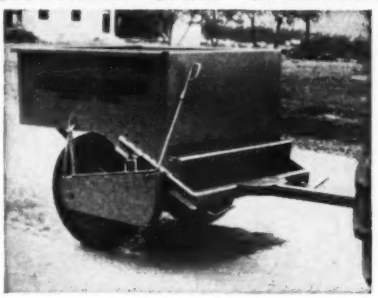
**SWENSON SIDEWALK SAND SPREADER**

A new fast way to cover icy walks with sand, ashes, cinders, salt, etc.

Can also be used for spreading abrasives on streets, parking lots and shopping areas.

1-yard hopper.

Write for circular.



**SWENSON SPREADER & MFG. CO., Lindenwood, Ill.**



## Director of Public Works Wanted

Civil Engineer and Director of Public Works wanted for the City of Delavan, Wisconsin. Population 4000. Location 50 miles from Milwaukee, 80 miles from Chicago. Experience preferred.

*Write to*

**Everett P. Doyle, City Attorney**
**Delavan, Wisconsin**

## New Personnel Director

Frank J. Slyva, formerly with the Elm Farm Foods Co., Boston, Mass., was recently appointed personnal director of The Gamewell Co., Newton Upper Falls, Mass.

F. J. Slyva

Among his past activities, Mr. Slyva includes the job of directing training and safety for the Bendix Aviation Corp., Brooklyn, N. Y., and Norwood, Mass., and his position as a member of the faculty of Northeastern University, where he taught personnel management and organization.

## New Vice President For LeTourneau

Officials of R. G. LeTourneau, Inc., Peoria, Ill., have appointed John W. Schoen to the position of vice-president and general sales manager. Mr. Schoen, who replaces the recently resigned R. E. McCluskey, will direct the company's sales division and related departments.

J. W. Schoen

Formerly vice-president in charge of sales for LaPlante Choate Co., Cedar Rapids, Ia., Mr. Schoen was also employed as consultant for the David Brown Industries, a British manufacturer of construction machinery and agricultural equipment. In addition, he served in various sales positions with the E. R. Squibb Pharmaceutical Co., and the Firestone Tire and Rubber Co.

## L-M Announces New Manager

Line Material Co., Milwaukee 1, Wis., has promoted Stacy Standley to the position of manager of L-M Lighting Sales. Mr. Standley replaces the recently resigned W. H. Edman, present manager of Street Lighting for the Holophane Co., Newark, Ohio.

Stacy Standley

The new manager has been with the Line Material Co. for some six years, beginning as Street and Airport Lighting specialist in their West Coast and Alaska territories. He has also been connected with CAA as West Coast airport engineer.

## New Sales Managers For East and West

J. Leslie Hart, present Western sales manager for United States Pipe & Foundry Co., in Chicago, has been appointed Eastern sales manager with headquarters at the company's main office in Burlington, N. J., according to a recent announcement by U. S. Pipe & Foundry officials. Mr. Hart is secretary of the Illinois section of the American Water Works Association.

Officials also disclosed the appointment of P. King Farrington to assume Mr. Hart's position. Mr. Farrington is presently assistant Pacific Coast sales manager for the company in San Francisco.

Both Mr. Hart and Mr. Farrington are scheduled to assume their new positions on July 1st of this year.

J. L. Hart P. K. Farrington

SMITH VALVES

WITH "O" RING SEAL

"O" Rings replace conventional packing and reduce maintenance to a minimum. The lower "O" Ring is the pressure seal, the upper "O" Ring the dirt seal. The specially compounded rubber plastic "O" Rings do not deteriorate and insure a long life pressure seal.

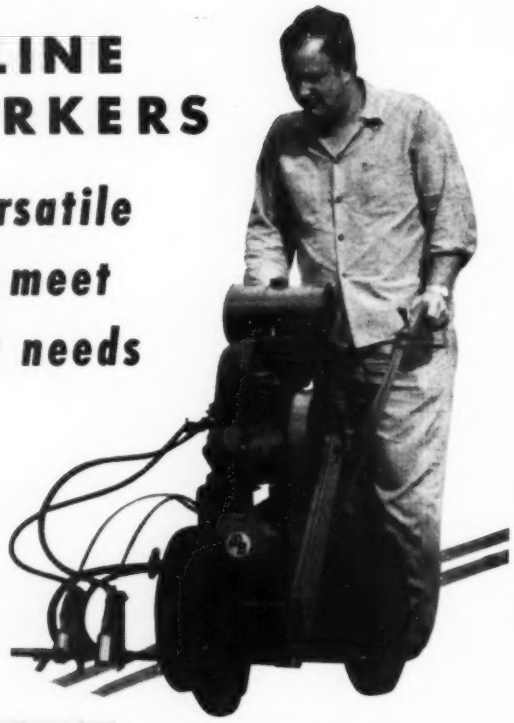
All Smith Valves can be equipped with "O" Ring Seal Plates. Write for details.

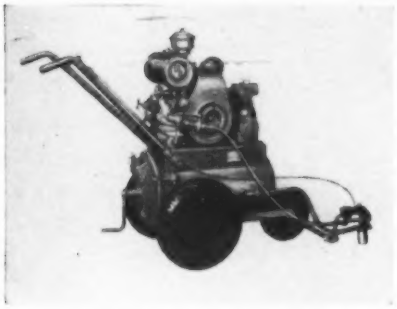
THE A.P. SMITH MFG. CO.

EAST ORANGE, NEW JERSEY

# LINE MARKERS

***fast, versatile units to meet all your needs***





Model E38-SL, 10 gallon capacity. Lays solid or intermittent lines. Available for single or double line marking. Hand propelled.

Model E48-DL, self-propelled. 10 gallon paint capacity. Lays single or double line, solid or intermittent.

Keep your streets safe, with properly marked traffic lanes and parking areas. M-B line markers are preferred in the major cities of the nation, because of their dependable performance, economy of operation and high productive capacity.

Over 25 years of experience has resulted in the finest engineered markers available. 7 sizes to meet your exact requirements. Sold and serviced by a national network of reliable distributors. Write for complete details today.

***A COMPLETE LINE FOR STREETS AND HIGHWAYS***

**Model 5P**
**Model E3**
**Model E4**
**Super 16**
**Super 10**
**Model 8**
**Model 9**

**MEILI-BLUMBERG CORP.**
NEW HOLSTEIN, WISCONSIN
*Graders • Highway Markers • Tractor Accessories*


## All-Hydraulic Aerial Ladders

Never before, says this manufacturer, has an aerial ladder of the utility type been provided with completely hydraulic control of every motion.

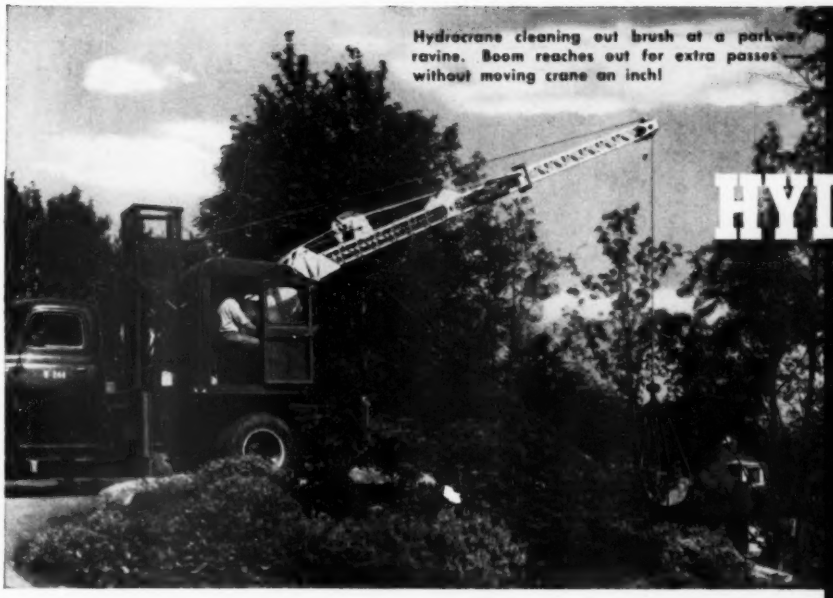
The J. H. Holan Corp., 4100 W. 150th St., Cleveland 11, Ohio, recently introduced a new series of aerial ladders, reported the first of their kind to earn the title "all-hydraulic." Designed primarily for truck mounting, the new units' complete hydraulic system may be driven by a power take-off, or by a gasoline engine within the turret base of the ladder.

**The operator need not engage in any non-productive physical effort with Holan's new aerial ladder.**

Large hydraulic cylinders, allowing low working pressures, are employed to elevate the ladders to any angle in a 75° range, while a hydraulic motor working through worm-gear drive rotates the base in a full 360° sweep providing an unlimited variety of working positions. A multiple-plunger hydraulic valve, conveniently located on the base, controls all operations and permits the operator to position the ladder quickly with one hand. Accurate spotting of the working platform at the angle, sweep or extension desired, has been provided for by a special throttling action in the valve.

Hydraulic motor power extends and retracts the fly section through a special winch with a spool designed to assure proper cable lay in rapid operation. Pressure relief valves prevent overstressing when engaging rung locks and end stops.

For more detailed information about the Holan 2100 Series which includes ladders with 27-, 31-, and 35-ft platform elevation, write to the manufacturer, or use the Post Card on the colored page in this section. Circle No. 15.



Hydrocrane cleaning out brush at a parkway ravine. Boom reaches out for extra passes — without moving crane an inch!

# BUCYRUS-ERIE HYDROCRANE

## six ways better for so many park jobs

Only the Bucyrus-Erie Hydrocrane can offer you this combination of time-saving, cost-cutting features:

1. **"Reach-ability"** — Boom is equipped with 8 ft. hydraulically telescoping section that reaches into windows and doorways . . . across fences, flower beds, shrubbery . . . without moving crane an inch.
2. **Maneuverability** — Extremely short tail swing (about 4½ ft.), low overall height plus boom telescope permit maneuvering the Hydrocrane in close quarters that stop other outfits cold.
3. **Stability** — Four husky outriggers extend and retract hydraulically in seconds — permit levelling crane from operator's station . . . give Hydrocrane exceptional lifting capacity.
4. **Mobility** — Zips along open highways at speeds up to 50 mph, maneuvers in traffic easy as an auto.
5. **"Control-ability"** — Fully hydraulic, for precision control. Simple hand levers only — no foot brakes. Unskilled men have learned to run it in a few hours.
6. **Convertibility** — Crane has actually been converted to Hydrohoe front end *by one man in less than one hour!* On trenching, telescoping boom cuts lost time on move-ups by 40 percent.

### PARK-PROVED IN ALL THESE JOBS

**Setting stone slabs**
**Replanting trees**
**Excavating for gas lines**
**Cleaning sunken gardens**
**Laying pipe**
**Setting flag poles**
**Removing trash**
**Grading around buildings**
**Snow removal**
**Building ponds and dams**
**Stockpiling material**

Get the full story on the ⅜-yd. Hydrocrane with its many attachments.
SEND COUPON TODAY . . .

Here the Hydrohoe starts a trench cut. Available with either 12- or 18-in. dipper — equipped with hydraulic ejector that kicks dirt out.

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WIS.

**BUCYRUS-ERIE COMPANY**
South Milwaukee, Wisconsin

Gentlemen: ☐ Please send me Hydrocrane literature.
☐ Please send me Hydrohoe literature.

Name.....
Title.....
Address.....
City..... State.....

19H53

*"THE INITIAL PRICE OF ANY TOOL DOES NOT DETERMINE ITS TRUE WORTH OR FINAL COST"*

# TIFA

**8 YEARS OF LEADERSHIP in CONTROL OF FLIES and MOSQUITOES by THERMAL FOG APPLICATOR**

## *You MUST Ask Yourself These Questions About Any Thermal Fog Applicator:*

### 1. Will the heat break down part of the insecticide that you must pay for?

**With TIFA—No!** At no point in the TIFA system is the insecticide subjected to more than 1100°F.—and that for only 1/500th of a second. Tests made at leading American universities show no breakdown of DDT in TIFA. Government tests shows no breakdown of Chlordane or Pyrethins in TIFA.

### 2. Will you get the positive control of particle size required to do your specific job?

**With TIFA—YES!** Here is a quotation from the report submitted by a famous, independent firm of consulting chemists and engineers:

> It can be stated with reasonable confidence that average particle size of the fog sampled anywhere in the field 25 to 200 feet from TIFA will fall within the following range:

| Rate of Flow (G P H) | Av. Particle Size (Microns) |
|---|---|
| 20 | 12.4+4.1 |
| 25 | 20.8+4.7 |
| 40 | 35.7+8.3 |

### 3. Is the most visible and spectacular fog the objective?

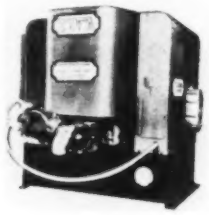
**No!** Dense masses of ½-micron droplets produce the most spectacular fogs—these are virtually worthless for outdoor mosquito work.

### 4. Are you considering the safest possible piece of equipment?

**With TIFA—YES!** The only field scale fog generator carrying the Underwriters' Listing Seal is TIFA.

### 5. Is the manufacturer absolutely reliable?

**With TIFA—YES!** TIFA is still being made and sold excusively by its originator, TODD. TIFA —still maintaining its leadership as the best tool of its type.



***Write for illustrated folder on sensational TIFA— full details and official comments.***

TIFA

## TODD INSECTICIDAL FOG APPLICATOR

Carrying Underwriters' Listing Seal

***Combustion Equipment Division***

TODD SHIPYARDS CORPORATION

**81-16 45th Ave., Elmhurst, Queens, N. Y.**

**The Swingfog gun is just over 5 ft. long, weighs little more than a filled week-end valise.**

## Portable Unit For Pest Control

Here, at last, is a pest-control unit that you can carry along with you. Highly portable, Swingfog weighs only 24 pounds (34 pounds filled) and is constructed with a convenient shoulder strap to simplify carrying.

According to the manufacturer, with a Swingfog gun in hand, an operator can climb up and down steps and ladders, get behind crates, and push into scores of places that are impossible to reach with more cumbersome types of pesticidal apparatus. Vehicle carriers which often damage arable land, are completely eliminated.

Introduced by Devenco, Inc., 150 Broadway, New York 38, N. Y., Swingfog consists of a pulse-jet heater, a fuel tank, a hand air-pump, a pesticide or fumigant tank and a long rifle-like exhaust tube. Because the apparatus has been designed with only two moving parts (flexible diaphragm valves), maintenance problems are negligible, and working life long.

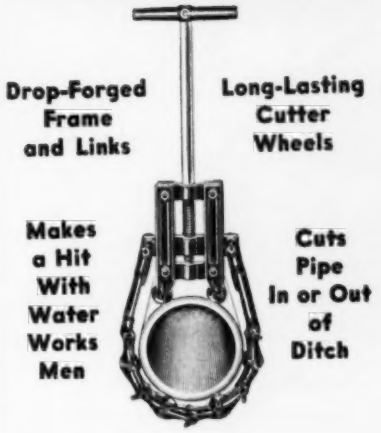
The fog output of this new device is some 35,000 cu. ft. in 5 minutes. A room of 1,755 cu. ft. requires about 15 seconds for treatment, and .06 cu. in. of solution will fill 35 cu. ft. Swingfog's fuel tank holds 1.2 quarts of gasoline, which will operate the gun for one hour.

Devenco, Inc., will gladly send further details concerning this portable pest-control unit on request. Write directly, or use the Post Card on the colored page in this section. Circle No. 7.

## Naylor Joins Koppers Division

George W. Naylor, head of the Washington, D. C., office of Koppers Co., Inc., for the past two years, was recently appointed assistant vice-president and assistant sales manager for the Tar Products Division of the company. Mr. Naylor will assist J. C. Macon, Jr., division sales manager, in promoting the sales of all division products. Koppers Co., Inc., is located in the Koppers Bldg., Pittsburgh 19, Pa.

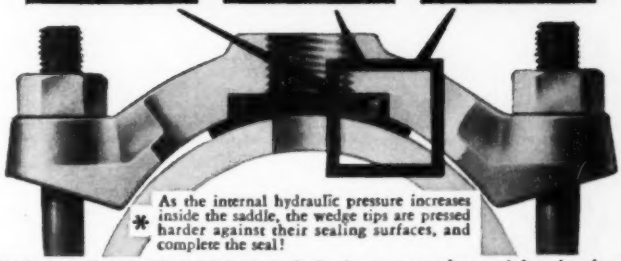

HEAVY-DUTY
ELLIS PIPE CUTTER
FOR CUTTING LARGE SIZE PIPE




TWO SIZES
No. 01 for 4" to 8" Pipe
No. 1 for 4" to 12" Pipe
*Write for Circular and Price List No. 35AC*

ELLIS & FORD MFG. CO.
FERNDALE 20, MICH.

SHURSEAL SADDLES
SEAL 3 WAYS*


* As the internal hydraulic pressure increases inside the saddle, the wedge tips are pressed harder against their sealing surfaces, and complete the seal!

**A VELVET GLOVE FOR YOUR PIPE LINE!** Only the most moderate tightening is needed on the ShurSeal Saddle. Merely tighten the nuts enough to prevent the saddle from shifting during the drilling operation, and your ShurSeal is made! Straps which are under less tension RESIST CORROSION BETTER. ShurSeal Saddle straps "hug" the pipe and eliminate bottom point pressure, insuring against crushing and breakage.

SEE YOUR LOCAL SUPPLY HOUSE FOR DETAILS AND PRICES OR WRITE

R. H. BAKER & CO., INC.
2070 EAST SLAUSON AVENUE, HUNTINGTON PARK, CALIFORNIA

# ONE BANTAM® FEEDS TWO 30-TON BATCHERS

### Small pit averages 810 truck loads per week

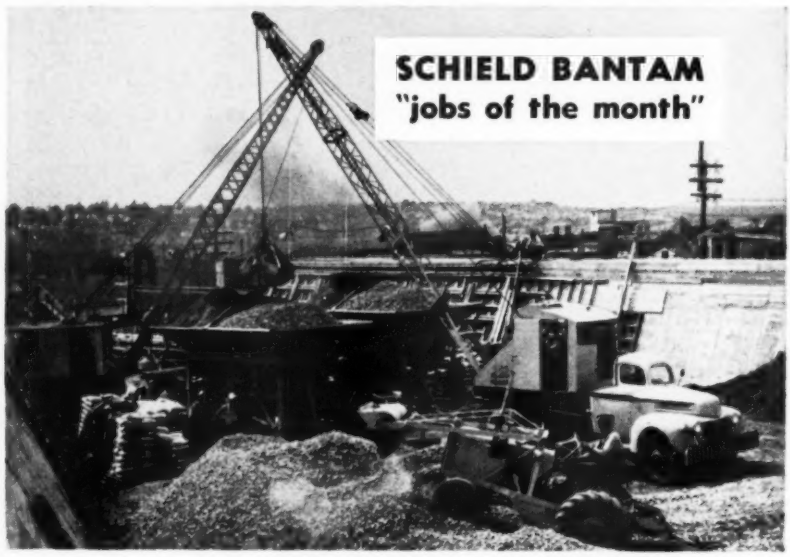
WAVERLY, OHIO — Working 24 hours a day, 5 days a week, one ⅜-yd. Bantam dragline, owned by A&W Gravel Co., has loaded out an average of 810 truck loads of gravel each week during the past *9 months.* Bantam keeps 7 big dump trucks rolling 'round the clock on 2-mile round trip haul between pit and new 12 x 24 rock crusher.

#### 115 yds. in 1 hr.!

"In one instance", owner Charles Armstrong reports, "Bantam handled *42 truck loads in 2½ hours,* averaging 11 buckets per truck every 3 minutes — for an hourly average of approximately 115 cu. yds."

Armstrong says his *18-year-old brother* operates the machine and finds it "perfect" from the standpoint of speed, endurance and low maintenance. Repair costs to date have been confined to *one cable replacement,* even though this Bantam has worked the *equivalent of 27 months of normal dragline service.*

### Smart Canadian contractor utilizes economical Bantam method to cut concrete costs on big bridge job




Truck-mounted Bantam clamshell with 35' boom delivers steady supply of sand and stone to 2 compartments in each batcher.

HALIFAX, NOVA SCOTIA — To speed construction of approaches for the new mile-long Halifax-Dartmouth bridge, being built across famous Halifax harbor, *McDonald Construction Co.* of this city is using two high-speed Schield Bantam truck cranes. One Bantam, equipped with clamshell (illustrated), is loading two 30-ton Lo-Bin batchers, which supply a pair of 16S concrete mixers, delivering a total of *30 cu. yds. of concrete per hour.* Job-mixed concrete is then poured directly into bridge forms by a larger ¾-yd. crane, thus providing a completely portable field set-up that is *fast, dependable and extremely economical to operate.*

#### Unloads materials

A *second* Bantam crane, brought in by McDonald, is unloading heavy granite facing stone from railroad cars to trucks. Same Bantam also hustles from one point to another, handling reinforcing steel, and performing numerous other crane jobs usually entrusted to larger, more expensive machines.

#### Cuts job costs

On this job—like thousands of others around the world — Bantam's 6-ton crane capacity, combined with its fast line speeds, maneuverability and low operating costs, are providing increased efficiency and economy, which can not be obtained by any other equipment method.

SB-E-2M

**"Why not find out how much *your city* can save with Bantams?"**

Low-cost Bantam dragline or clamshell drives anywhere over city streets, black top, or off highway, at truck speeds . . . maneuvers in tight spots and other locations where bigger, heavier machines can't go . . . gives you 6-ton crane capacity, with 8 fast-change attachments, for cutting costs on wide variety of jobs. Write today for descriptive literature and free demonstration of new heavy-duty Model T-35 with special crane carrier.

**Typical Bantam Applications**

Repairing sewer and water lines • Stockpiling gravel, cinders, etc. • Installing culverts and drains • Repairing bridges • Charging crushers, batchers, etc. • Loading and unloading materials • Misc. excavation, ditching and general clean-up.

**SCHIELD BANTAM CO.,** 234 Park St., Waverly, Iowa

World's largest producer of truck-mounted cranes and excavators

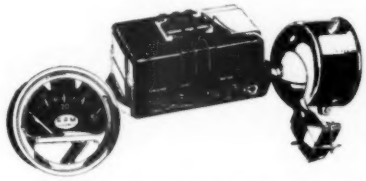
## Municipal Vehicles Cost Less to Run With Electric Tachometer

The new Electric Tachometer on any of your municipal vehicles means a tremendous saving on gas, oil and repairs, according to the manufacturer, Sun Electric Corp., 6323 Avondale Ave., Chicago 31, Ill.

For the Electric Tachometer is a precision measuring instrument, and by keeping its indicating hand between meter arrows, any driver is able to maintain a safe, economical rpm. Not only does the instrument help prevent engine overspeeding, overheating, and premature wear on vital engine parts, but it enables the driver to make better road time by telling him when to shift gears. The results, say Sun officials, include many extra miles per gallon, and a more efficient engine.

Sun Electric Tachometers do not draw current from the battery of the vehicle, and cannot injure the ignition points or any other part of the vehicle's electrical system. An attractive mounting bracket, adjustable, and finished in rubberized black enamel is available, permitting quick installation of the instrument on any flat or curved surface of the instrument panel or on the steering column. This measuring device may be used profitably on trucks, busses, automobiles, tractors and boats.

For a full data sheet, write the manufacturer or turn to the colored page in this section and use the Post Card. Circle No. 29.



**The Sun Electric Tachometer.**

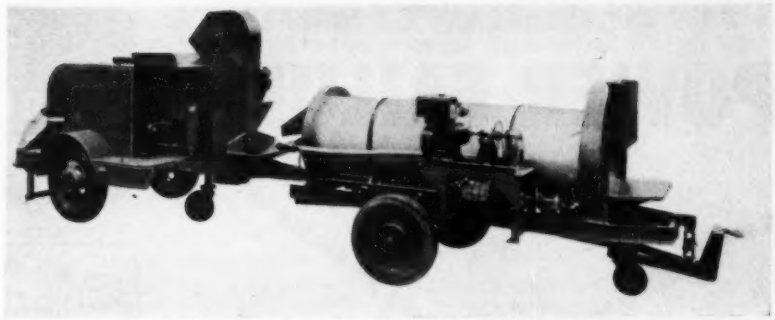
## Portable Asphalt Dryer

Developed especially for use with the Hetherington & Berner Moto-Patcher, this new Portable Asphalt Dryer has a drying capacity of up to 10 tph, with aggregate feeding either by rotary elevator from a truck, or by hand.

The drum of the dryer is 8 ft. long and 30 in. in diameter while the fuel-oil tank has a capacity of 40 gallons, and the oil burners are low-pressure, air-atomizing. Each power unit is a Briggs & Stratton Model 23R6 with reduction gear and Viking fuel pump. Ball bearings and roller chain are used throughout the dryer.

All H & B Portable Dryers are readily attachable to any standard make truck with a towing hitch. The landing gear is the retractable swivel type with 3:50 x 6-4 ply tire and adjustable leveling device, while the running gear is a two-wheel single axle with leaf springs.

Address Hetherington & Berner, Inc., 737 Kentucky Ave., Indianapolis 7, Ind., for a bulletin giving complete specifications on both the Portable Asphalt Dryer and the H & B Moto-Patcher. You may also turn to the colored page in this section and use the attached Post Card. Circle No. 14.

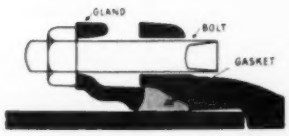


**Here the dryer is attached to an H & B Moto-Patcher.**


PIPE LAYER'S

**MAGIC WAND!**

**RATCHET WRENCH IS ONLY TOOL NEEDED TO LAY McWANE-PACIFIC BOLTITE MECHANICAL JOINT PIPE**




Boltite pipe is used for water, gas, steam, oil, chemicals and other liquids. Gaskets are rubber compound, asbestos, duck tipped, and other materials for special services.

There's magic in a ratchet wrench when you lay McWane-Pacific "Boltite" Mechanical Joint Cast Iron Pipe. A ratchet wrench is the only tool needed for one man to make "Boltite" joints. He simply slips the follower-ring and the gasket over the spigot end, then sockets the pipe, inserts the gasket into the stuffing box and bolts up the follower-ring for a bottle-tight, flexible joint. McWane-Pacific Boltite pipe is furnished in 18-foot lengths. The follower-ring, gasket and bolts are interchangeable with any make of standard mechanical joint pipe. For further details, write

**McWANE Cast Iron Pipe Company**
**Birmingham, Ala.**
**Pipe Sizes 2" thru 12"**

Sales Offices

| | |
|---|---|
| Birmingham 2, Ala. | P. O. Box 2601 |
| Chicago 1, Ill. | 333 North Michigan Ave. |
| New York 4, N. Y. | 80 Broad Street |
| Kansas City 6, Mo. | 1006 Grand Avenue |
| Dallas 4, Texas | 1501 Mercantile Bk. Bldg. |

**PACIFIC STATES Cast Iron Pipe Co.**
**Provo, Utah**
**Pipe Sizes 2" thru 24"**

Sales Offices

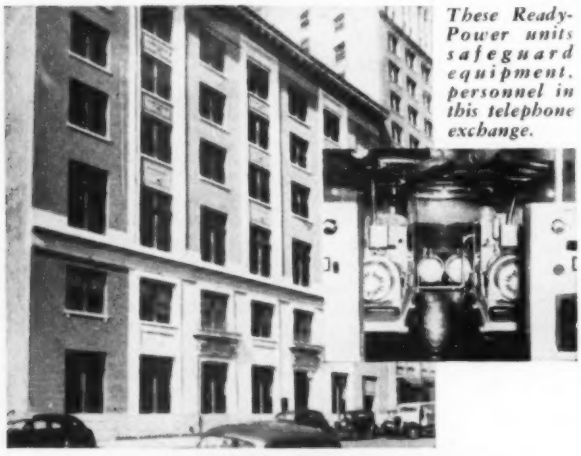
| | |
|---|---|
| Provo, Utah | P. O. Box 18 |
| Denver 2, Colo. | 1921 Blake Street |
| Los Angeles 48, Cal. | 6399 Wilshire Blvd. |
| San Francisco 4, Cal. | 235 Montgomery St. |
| Portland 4, Oreg. | 501 Portland Trust Bldg. |
| Salt Lake City | Waterworks Equip't Co. |
| Seattle, Wash. | Smith Tower Bldg. |

# How Much Would POWER FAILURE COST YOU ?

Ever stop to think what sudden, unexpected interruption of electrical service might mean to you in terms of dollar or property loss . . . *even possible loss of life?*

You can avoid this risk by installing dependable Ready-Power Standby equipment. Then whenever normal power fails, your Ready-Power equipment will immediately and automatically take over, assuring continuation of vital services during the "down" period.

Ready-Power engine generators can service practically any standby power requirement. They operate on gasoline, natural gas, butane, or propane.



*These Ready-Power units safeguard equipment, personnel in this telephone exchange.*

## READY-POWER

**ENGINE GENERATORS**

For complete information please write to

**THE READY POWER CO. • 11231 Freud Ave., Detroit 14, Mich.**

Manufacturers of Gas and Diesel Engine Driven Generators and Air Conditioning Units; Gas and Diesel Electric Power Units for Industrial Trucks.

# GEOPHONE locates leaks without digging

"Registered in U. S. Patent Office"

When the discs are placed on the ground (as pictured) the Globe Geophone detects by sound the exact location of leaks in water or steam pipes. Acclaimed for its accuracy, the Globe Geophone has become indispensable in Public Works Departments and Industrial Plants throughout the United States.

**• MONEY-SAVING**

You save the costly expense of extensive surveys, excavating and replacing. The inexpensive Globe Geophone pays for itself many times over in money saved.

**• ACCURATE**

Operating on the principle of the seismograph, the Globe Geophone is without question the most sensitive and reliable instrument for detecting underground leaks.

Complete Geophone outfit consists of connecting tubes, two Geophone discs, headpiece, and heavy leather-covered carrying case with shoulder strap..... **$85**

**Pipe Phone .....$3.70**
(Aquaphone)

**Globe Phone Mfg. Corp.** Reading, Mass., U. S. A., Dept. Y

Manufacturers of Geophone Since 1918

# FILTER SAND AND GRAVEL

**Produced from an inland pit hence free from river contamination and foreign matter.**

**Shipment in bulk or bagged.**

**Many of the larger filter plants throughout the United States are equipped with our products.**

**PROMPT SHIPMENT**

***Inquiries and orders solicited.***

**NORTHERN GRAVEL COMPANY**

Muscatine, Iowa

P. O. Box No. 307 Phone: 4261

## Soil Reaction Tester Improves Plant Growth

Because the improved growth of all crops, vegetables, flowers and trees is aided by accurate soil reaction tests, Hellige Inc., 3718 Northern Blvd., Long Island City 1, N. Y., has come up with a convenient and reliable means of determining the acidity or alkalinity (pH) of soils.

Designated The Hellige Soil Tester, this new device may be used anywhere, by anyone. Compactly packaged to fit the pocket, the tester's operation is so simple that experience or specialized knowledge is not required for rapid and dependable reading.

According to Hellige Inc., their soil tester is the only outfit of its kind with an accurate color comparison scale permanently processed into the test plate for ease of operation. The color scale is located conveniently on either side of the channel of the test plate to facilitate comparison with the Soil Indicator. Clearly differentiated colors represent pH 4 to 9 (highly acid to strongly alkaline reactions). By the arrangement and nature of these color standards, the Hellige Soil Tester does away forever with soiled or lost color charts.

This new Soil Tester may be furnished with the Hellige Soil Manual, a practical discussion on soil chemistry, and a bulletin by Prof. C. H. Spurway, listing the soil reaction preferences of 1700 cultivated and native plants.

For further information write directly to the manufacturer, or use the Post Card on the colored page in this section. Circle No. 41.

## Shantz and DeHart Occupy New Posts

A. A. Shantz, general parts and service manager of General Motors Corp. Truck & Coach Div., 660 S. Blvd., E., Pontiac 11, Mich., since 1944, has been appointed assistant general manager of truck sales. The announcement came from Philip J. Monaghan, vice-president of General Motors and general manager of GMC Truck & Coach Div.

Another company appointment was that of Henry T. DeHart. Former truck advertising manager of GMC, Mr. DeHart has been elevated to the position of merchandising manager.

## Truck Manufacturer Opens New York Headquarters

Formal opening of Hyster Company's New York dealership and national accounts headquarters is scheduled for May 14th, according to company officials. While the new dealership, Hyster Co.-New York, 10-10 Bridge Plaza South, Long Island City, has been in operation for the past six months this formal opening will give visitors an opportunity to view the new building which features one of the most complete modern materials handling parts, sales and service establishments in the country.

Coinciding with the opening, is Hyster's announcement of two new fork-lift truck models for 1953. A complete line of lift trucks, Straddle Trucks, Karry Kranes and Turret Trucks will be on display for the opening.

For thorough details on any of the Hyster truck models write directly to the manufacturer at 2902-61 N. E. Clackamas St., Portland 8, Ore., or take advantage of the Post Card on the colored page in this section. Circle No. 16.

**Long Island dealership and national accounts headquarters for Hyster Co.**

# M&H BOOTH

## A. W. W. A. CONVENTION EXHIBIT

### GRAND RAPIDS AUDITORIUM — MAY 10-15, 1953

We hope to see you at the big show in Grand Rapids. Come by our M & H Booth in the Exhibit Hall. Whether you feel like sounding a barbershop chord, or talking valves and hydrants, or just resting your tired "dogs"—you'll be quite welcome. Incidentally, in case you're interested, we'll have a nice display of M & H products. M & H Valve & Fittings Company, Anniston, Alabama.

**M&H PRODUCTS** FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

*HERE'S WHY*

**MURDOCK'S THE BETTER BUY!**

(1) SAVES WATER—cannot be left on accidentally due to foot pedal operation

(2) PREVENTS CONTAMINATION —of water from any underground source

(3) NON-FREEZING — worry-free year 'round in any temperature

(4) TROUBLE-FREE — replacement of washer is about only attention required.

*"It Pays to Buy Murdock!"*

**The Murdock Mfg. & Sup. Co.**
Cincinnati 2, Ohio

**MURDOCK**

**OUTDOOR DRINKING FOUNTAINS**

**HYDRANTS**

**STREET WASHERS**

**NEW TYPE EASTERN "A" STANDARD**

The most effective warning sign for work areas. Wide base red angle-iron frame won't blow over. Yellow free-swinging sign, black lettering on both sides. Choice of eight standard legends, also reflectorized.

**Portable unit stands 27-in. high by 18½-in. wide; folds and locks 18-in. x 18-in. sign in place; flags removable; weighs only 13 lbs.**

All Eastern Metal traffic signs are official designs as specified by the Department of Commerce, Bureau of Roads—new legible lettering, heavy-gauge steel and durable flexible baked enamel. Prompt delivery and economical price.

**Send for illustrated folder and price list.**

INDUSTRIAL • SAFETY **EM SIGNS** UTILITY • TRAFFIC

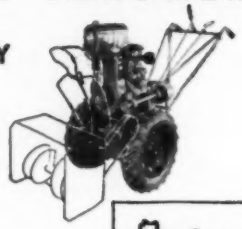
**EASTERN METAL**
**of Elmira, Inc., Elmira Heights 1, N. Y.**

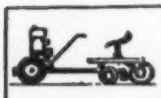
Distributors: Write for Sales Plan



**MAXIM SNOW THROWERS**

**NOW A GOOD BUY FOR DECEMBER OR JULY**



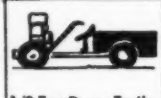

3-Gang 72" Mower

37" Rotary Mower

Now you can use a Maxim Snow Thrower all year long. The snow thrower unit is readily removable, leaving a sturdy 7.5 h.p. tractor on which you can quickly attach the equipment shown here. Tractor is equipped with a heavy duty transmission having 3 forward speeds and one reverse. Use this one piece of equipment for snow removal, mowing, rolling, grading, or hauling.

700 Lb. Lawn Roller

42" Grader or Snow Blade


1/2 Ton Dump Trailer

**WRITE FOR DETAILS ON THIS MULTIPLE USE EQUIPMENT!**

**THE MAXIM SILENCER COMPANY**
84 Homestead Avenue, Hartford 1, Connecticut

Name_____

Address_____

IMT53



*The* **NETCO** **CATCH BASIN CLEANER**
WITH PNEUMATIC CONTROLS

***A Necessity For Every Municipality***

- **Simple**
- **Positive**
- **Powerful**

Easily mounted on any short wheel base truck with 8 ft. in back of the cab, the Netco can be operated continuously, averaging 20 to 30 catch basins a day. The Netco with its two powerful pneumatic buckets (orange peel or clamshell) is simple to operate, has a hoisting capacity up to 1500 lbs., and easily removes all debris through openings as small as 16 inches.

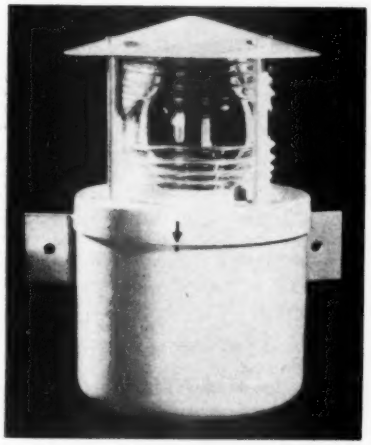
**NETCO DIVISION**
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

## New Photoelectric Control For Street Lights

A new photoelectric lighting control is offered that is sensitive to outdoor lighting conditions over a range of ½ to 8 foot-candles. Features accentuated by the manufacturer are trouble-free automatic switching, long life, and positive action at fringe conditions.

Tube life is placed at 20,000 hours which, on a 12-hour day, is 4½ years. However, in case a tube did fail, the street lights are illuminated. A 15-second on-off time delay protects against lighting and sign flashes. The turn-off point is ¾ foot-candle higher than the turn-on. Power drain of the control is under 8 watts. The controls will switch ½ to 3 kw loads.

Solatron is the name of the new control manufactured by Solatron Div. of General Aviation Corp., 540 E. 80 St., New York 21, N. Y. For complete information, write the company, or Circle No. 56 on the Post Card located on the colored page in this section.



## Trotter to Represent B-I-F in Buffalo

Officials of B-I-F Industries have announced the appointment of Herman E Trotter as the company's new representative in Buffalo, N. Y. Mr. Trotter will handle the sales of Builders - Providence, Inc., manufacturers of flow meters and controllers, and of Omega Machine Co., manufacturers of chemical feeders. His new address will be 3053 Main St., Buffalo.

H. E. Trotter

All requests for information concerning any of the products manufactured by B-I-F Industries may be obtained by writing to the manufacturer at 345 Harris Ave., Providence, R. I., or you may turn to the colored page in this section and take advantage of our Post Card. Circle No. 4.

## Stops Fluoride Dust Danger And Other Nuisances

Fluorides in the water in the right concentration apparently represent a beneficial step forward in dental health. But fluorides in the air, resulting from fluoride salts being placed in a chemical feeder and then introduced into the water, certainly are not good in any public health handbook.

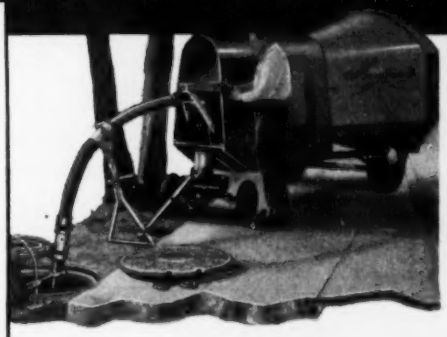
You can let your mind rest easy on this subject if you use a Ducon Unit Type dust collector with your fluoride feeder. This same type of unit can be used wherever nuisance dusts are a problem, such as buffing and grinding operations, or other chemical handling work.

The Ducon Type UFS Unit Dust Collector can be installed close to the dust source for minimum duct work, or at a point convenient for dust disposal. You merely connect the hood enclosure to the dust collector unit through flexible or sheet-metal ductwork and make electrical wiring connections.

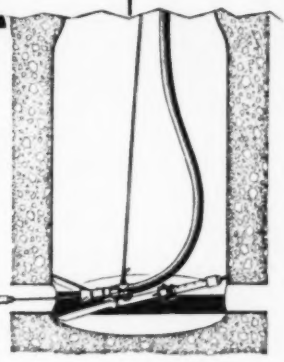
A more detailed description of the Ducon Type UFS Unit Dust Collector is available in Bulletin F-30-52, from The Ducon Co., 147 E. Second St., Mineola, N. Y., or take advantage of the Post Card on the colored page in this section. Circle No. 55.


DO YOU REALIZE ?
ONE "FLEXIBLE" SEWERODER

CLEANS 50 BLOCKS OF SEWERS PER WEEK!



At a Cost of Less Than 2¢ a Foot*



*This figure includes maintenance and parts replacement.

SEWERODER

—Is a mechanical marvel that does all rodding with two men — eliminating 9/10ths of the usual hard labor in a day's work. It's increased, low cost capacity permits "preventative maintenance" to be carried on inexpensively —and eliminates costly emergency work. Rod reel contains 900 feet of rods for instant use. Imparts a rotating action to rods and tools. Truck mount models also available.

WRITE today

Flexible
SEWER-ROD EQUIPMENT CO.
9059 VENICE BOULEVARD, LOS ANGELES 34, CALIF.

41 Greenway St. — Hamden 14, Conn.
147 Hillside Terrace — Irvington, N. J.
P. O. Box 465 — Memphis, Tennessee
1115 Delaware Ave. — Fort Pierce, Fla.
141 W. Jackson Blvd. — Chicago, Ill.
200 Magee Bldg. — Pittsburgh, Penn.
66 Kinlry Drive — Rochester 9, New York
29 Cerdan Avenue — Roslindale 31, Mass.
801 E. Excelsior Blvd. — Hopkins, Minn.
3786 Durango St. — Los Angeles 34, Calif.
4455 S.E. 24th Street — Portland, Oregon
351 West Jefferson Blvd. — Dallas, Texas
Francis Hankin — Montreal & Toronto, Canada

AMERICA'S LARGEST MANUFACTURER OF PIPE CLEANING TOOLS AND EQUIPMENT

Fred A. Greis, New York District Manager of Underwood Corporation, has served the Village of Lynbrook as a Trustee and its Mayor for a period of 21 years. Lynbrook is a town of 18,000 people with an annual budget of some 700,000 dollars. "Fred A. Greis brought an understanding of modern business machines and methods to municipal work," says the above editorial article from THE AMERICAN CITY for February, 1953. "By installing one accounting machine to help do all the village accounting and budgetary work, payrolls, and the general ledger, and a billing machine for the tax work, three theretofore onerous tasks of doing records by hand were eliminated."

•

Underwood Offices are ever on the alert to help municipalities do their accounting, figuring and typing work more efficiently with the latest Underwood machines. Call your Underwood Representative today.

# UNDERWOOD CORPORATION

**Accounting Machines . . . Typewriters . . . Adding Machines . . . Ribbons, Carbon Papers and other Supplies**

**One Park Avenue, UNDERWOOD New York 16, N. Y.**

***Sales and Service Everywhere***

## New Relief Valves Offer Automatic Protection

A new series of automatic reseating temperature and pressure relief valves has recently been introduced by A. W. Cash Valve Mfg. Corp., Wabash and Morgan, Decatur 60, Ill. Known as Econo-Therm Relief Valves and designated Cash-Acme's Type V Series, these new valves offer complete and automatic protection.

Cash engineers have included a temperature actuated mechanism in the Econo-Therm valve. A thermostatic device, it is said to contain no fluids, will withstand high temperatures without deterioration, and will not wear out with use. Acting as a thermostat, the device opens the valve when the water reaches 208° and closes drip tight when the water has become sufficiently cool to eliminate the dangerous condition.

Cash-Acme's Type V Series is A.G.A. approved, and is available in either the regular or stem type, with or without try levers. The regular valve is for ordinary hot water storage heater installation, while the stem type is recommended for electric heaters, insulated tanks, and installations wherein close nipples cannot be used.

For Bulletin No. 297 on Econo-Therm Relief Valves, write A. W. Cash Corp., or use the Post Card on the colored page in this section. Circle No. 36.

## Hydraulic Tractor Loader

This 1 cu. ft. Model which combines a static load capacity of 5,000 pounds with the ability to turn in a 14-ft. radius, is one of the new line of Load Plus hydraulic tractor loaders just announced by Jaeger Machine Co., 505 Dublin Ave., Columbus 16, Ohio.

Able to hoist its bucket from the ground to an 8-ft. 2-in. dumping clearance in 9 seconds, and travel at speeds 18.7 mph forward and 28.2 mph in reverse, the 1-ft. Model has a torque converter drive which automatically applies the power needed to enter material and fill the bucket in one movement. There is little need for gear shifting or impact loading.

In combination with 5 transmission speeds, the torque converter provides an infinite number of gear ratios for maximum speed and power under all conditions. A single reversing lever changes travel direction without shifting speed gear, and each reverse speed is approximately 50% higher than its equivalent forward speed. The machine has a ground clearance of 12-in. and the need for underslung counterweighting has been eliminated by making both the front end and rear radiator grille of massive casting.

In addition to this 1 yd. model, Jaeger tractor loaders in 12 cu. ft., $\frac{5}{8}$ cu. yd. and $1\frac{1}{2}$ cu. yd. models are being offered for handling bulk materials in construction and industrial work. The larger sizes are also adaptable for prime moving, railroad car pushing, bulldozing, snow plowing and operating hydraulic hooks.

Further information may be obtained from the manufacturer, or turn to the colored page in this section and use the Post Card placed there for your convenience. Circle No. 40.

6 YEARS PROOF ON 2-WAY RADIO!

Leece-Neville

ALTERNATORS END BATTERY TROUBLES

BATTERY USED FOR STARTING ONLY

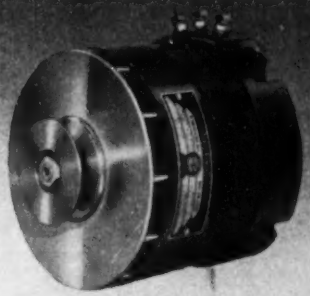
Since 1946, L-N Alternators have been eliminating battery troubles on 2-way radio vehicles... or wherever needs for current are high. Replace conventional generators with the L-N Alternator System and get

25 TO 35 AMPERES IDLING!

ENTIRE ELECTRIC LOAD CARRIED BY THE ALTERNATOR

BATTERY KEPT FULLY CHARGED

Let us arrange a demonstration of the L-N Alternator for your fleet. Or write for all the facts. The Leece-Neville Company, Cleveland 14, Ohio. *Distributors in principal cities... Service Stations everywhere.*



HEAVY-DUTY ELECTRIC EQUIPMENT FOR OVER 43 YEARS

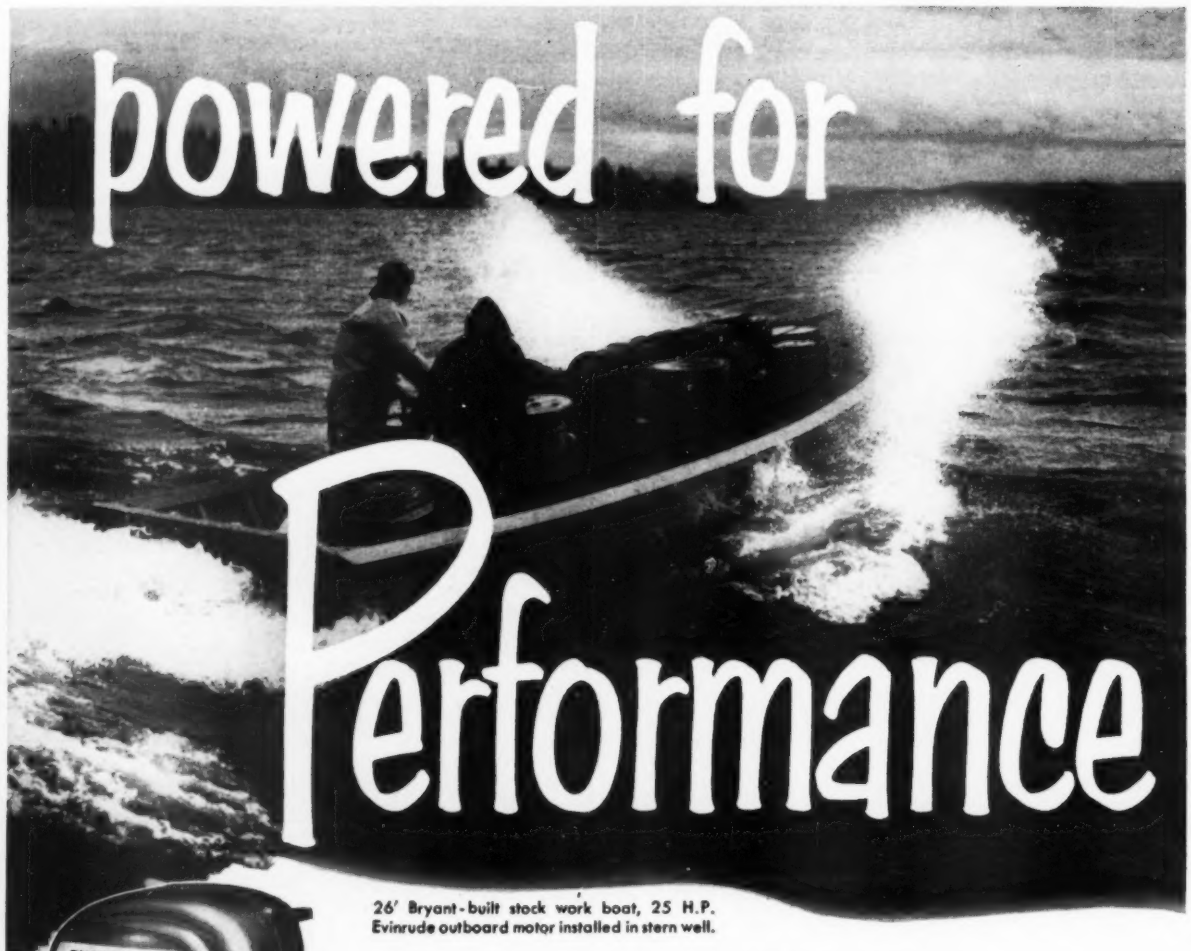
YOU CAN RELY ON Leece-Neville

*Be Sure to Specify Leece-Neville*

ALTERNATOR SYSTEMS • GENERATORS
STARTING MOTORS • REGULATORS • SWITCHES
FRACTIONAL HP MOTORS

TRUCK BUS DIESEL OFF-HIGHWAY
PASSENGER RAILROAD MARINE INDUSTRIAL

# powered for Performance



26' Bryant-built stock work boat, 25 H.P. Evinrude outboard motor installed in stern well.

**BIG TWIN**

25 O.B.C. certified B.H.P. at 4,000 R.P.M. Gearshift, separate plug-in fuel tank. Prices, F.O.B. factory, subject to change without notice.

**$390**

**PROVED PERFORMANCE!** No "maybe" when it came to picking the power plant for this husky work boat. In identical hulls the Evinrude 25 H.P. Big Twin had conclusively proved its advantages over conventional engine installations of the same rated horsepower. Higher speed, light or loaded. Greater maneuverability. Important space saving. Easy beaching. *Far lower cost*—as much as $900 *less* than the conventional installations.

With *performance,* an Evinrude gives you stamina and low upkeep you couldn't beat in any type of motor. A complete line, 3 to 25 H.P., to meet the widest range of work boat needs. See your Evinrude dealer—look for his name under "Outboard Motors" in the yellow pages of your phone book. For complete literature write EVINRUDE MOTORS, 4197 North 27th Street, Milwaukee 16, Wisconsin.

*In Canada: Manufactured by Evinrude Motors, Peterborough, Ontario*

Big Twin is also available in 20" extra depth model suitable for transom heights to 35". Photo shows Bristol Bay, Alaska, sailing gillnetters converted to power with this motor.

**EVINRUDE**

**OUTBOARD MOTORS**

## Effective New Capsule Kills Mosquitos Quickly

You don't need any equipment to kill mosquito larvae when you use Tossits, say spokesmen for Sentco Inc., 2400 Tamarind Ave., West Palm Beach, Fla. All you do is toss the water-soluble capules, each of which contains a high concentration of DDT and BHC, into infested waters. When the capsule dissolves, special spreading agents rapidly carry the solution in all directions, forming a film of larvae-killing insecticide over the surface of the water.

Since one Tossit will cover some 1,000 sq. ft. of water, one man with 50 Tossits is able to larvacide an entire acre of dense breeding ground. Inspectors and field men are able to larvacide hard to reach places in a fraction of the time required for hand spraying.

A more detailed analysis of Tossits and their application will be sent by the manufacturer, or use the Post Card on the colored page in this section. Circle No. 58.

## Foram Chilena Appointed Representatives

The appointment of Foram Chilena of Augustinas 608, Santiago, Chile, as exclusive sales and engineering representative for De Laval products in the Republic of Chile, was recently announced by Sherry W. Johns, export sales manager of De Laval Steam Turbine Co., Trenton 2, N. J. The South American company will handle all De Laval products, including steam turbines, centrifugal pumps, IMO pumps, speed reducers, couplings, compressors and blowers.

W. J. Healy

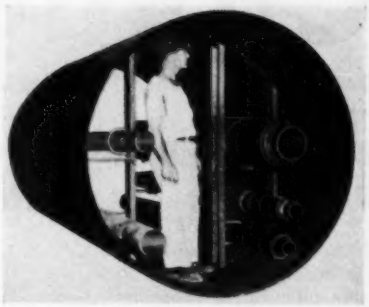
Another appointment made by De Laval, is that of William J. Healy, as sales manager of the blower and compressor division. Mr. Healy is also sales manager of the company's turbine division.

## New Prefabricated Underground Tunnel Piping System

Supplementing its line of prefabricated insulated piping, The Ric-wiL Co., Union Commerce Bldg., Cleveland 14, Ohio, has recently developed a large diameter conduit system for protection of underground distribution piping and other utility services.

Known as the Ric-wiL Utilidor, the system is completely prefabricated to job requirements with distribution piping for steam, condensate, water lines, fire lines, or process purposes all in place and insulated where required. This includes traps, valves, and expansion devices, and according to the manufacturer, provisions may also be made for electrical and communication cables and ceiling lights.

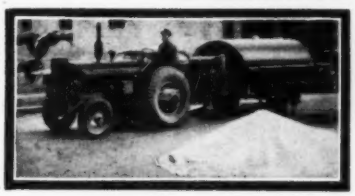
Ric-wiL has constructed the heavy-gauge housing of corrugated ingot iron conduit, hot-dip galvanized and thoroughly protected with asphaltic or phenolic resin coatings. Ample walk-through space may be provided in large-diameter Utilidors, which makes possible periodic inspection, maintenance, or alteration of the interior services, as well as allowing room for pedestrian passageway or conveyor systems between buildings.



Utilidor Folder Form 5210 may be obtained by using the Post Card on the colored page in this section. Circle No. 39.


IT'S A REAL "GULLEY-WASHER" STANDARD STEEL FLUSHER

TRUCK MOUNTED FLUSHERS
STREAMLINED FOR CIVIC PRIDE



T. F. TRACTOR FLUSHER CAN BE USED FOR FIGHTING FIRES AS WELL AS STREET CLEANING!

★ MODERN TO THE MINUTE
STANDARD STEEL FLUSHERS (both Tractor and Truck mounted) are built for heavy duty as well as "styled to the minute" like the finest motor cars!

★ HI-TENSION STEEL THROUGHOUT
STANDARD STEEL FLUSHERS are built of Hi-Tensile Steel—4 to 6 times less corrosive than blue annealed steel. Saves 15 to 20% dead weight.

★ 50 LBS. PRESSURE ON EACH NOZZLE
You get a hurricane "GUTTER to GUTTER" wash from any Standard Steel Flusher. (Comes in both front and rear engine mounted.) The 350 G.P.M. Pump and 20 H.P. engine on the Tractor Flusher makes this equipment an excellent piece of auxiliary fire fighting equipment. Write for FLUSHER catalog today.

Built to the Highest Standard FL3

OTHER PRODUCTS
Asphalt Pressure Distributors, Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Construction Brooms.

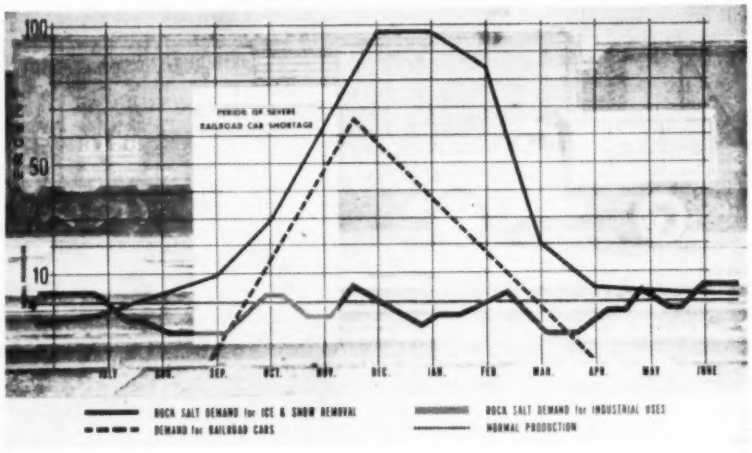
Standard Steel Works NORTH KANSAS CITY MO

# Cayuga Rock Salt

***Don't wait till snow falls and delivery's SLO!—With SALT, RAYN-SHED, TARCO, be ready to GO!***

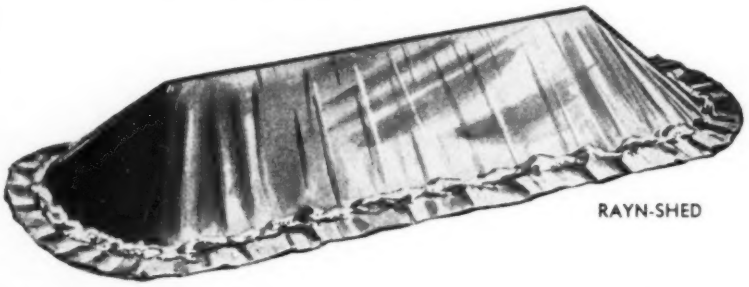
## Better buy your supplies Before the snow flies!

If you wait until fall or winter, when transportation loads are at their peak, delivery may take 12 weeks or more. Look at the chart. Note the terrific demand for Rock Salt from September to March. Note also the shortage of freight cars during October, November and December. December's the month when you'll be wanting your Rock Salt in a hurry, to prevent costly skids on icy pavements. So—to be on the safe side, lay in your supplies of Rock Salt NOW.



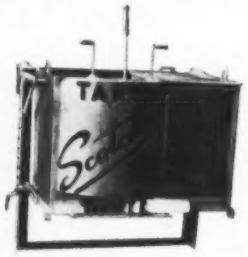

## Put your Rock Salt to bed In a handy RAYN-SHED

Stored under RAYN-SHED, your salt will be kept in good condition ready for immediate use when needed. RAYN-SHED is a durable, watertight, weather-resistant vinylite plastic sheet. Standard-size strips, sewed together, will cover salt piles of from 2 to 20 carloads.



RAYN-SHED

## To SPREAD salt, all say This machine's the best way



For correct application of Cayuga Rock Salt we recommend the TARCO "Scotchman" Salt Spreader. Apply 300 to 400 pounds of salt, depending upon road conditions, and you'll be amazed at how fast you obtain bare, safe pavements.

### COMPARATIVE COSTS OF PROTECTING ICY HIGHWAYS

| With TREATED SAND | | With CAYUGA ROCK SALT | |
|---|---|---|---|
| (Sand mixed with sodium chloride) | | | |
| Cost per cubic yard: | | Cost per 5-ton load: | |
| Royalty | $.10 | 5 tons bulk salt at $12.95 per ton | $64.75 |
| Loading | .25 | Loading, 5 tons at 25c per ton | 1.25 |
| Haul, 5 miles at 8c | .40 | Average haul, 5 tons, 30 miles at 8c per ton mile | 12.00 |
| Piling with bulldozer | .15 | Spread (mechanical) 5 tons at $1.00 | 5.00 |
| Treating with salt (50 lbs.) | .48 | | |
| Reloading at time of storm | .25 | Total cost per 5-ton load | $83.00 |
| Average haul, 10 miles at 8c | .80 | This is the cost for 25 miles of road | 83.00 |
| Spread | .10 | Cost per mile ($83.00 divided by 25) | 3.32 |
| Total cost per cubic yard | $2.53 | | |
| Cost per mile (3 cu. yd. at $2.53) | 7.59 | | |

$7.59 cost per mile with treated sand
3.32 cost per mile with Cayuga Rock Salt

$4.27 SAVINGS per mile with Cayuga Rock Salt

This report is from F. Ray Williams, Superintendent of Highways, Saratoga County, N. Y. Total mileage of state highways in this county: 216 miles. Estimated savings, each storm, 216 X $4.27, or $922.32.

# CAYUGA ROCK SALT CO., INC., MYERS, N. Y.

**SIZES FOR ALL PURPOSES** — *Call Nearest Distributor* — **BULK OR BAGS**

Alantic Salt Company
Pier One—Northern Av.
Boston, Massachusetts
Phone: Liberty 2-1281

L. A. Gray
West Sullivan, Maine
Phone: Sullivan 57

Barnes Salt Company
Cor. Benefit & India Sts.
Providence, R. I.
Phone: Dexter 1-7279

The Chemical Corp.
54 Waltham Ave.
Springfield 23, Mass.
Phone: 9-5601

The Chemical Corp.
Pittsfield, Mass.
Phone: 2-0718

The Chemical Corp.
Hartford, Conn.
Phone: 6-3223

The Chemical Corp.
80 Boylston St., Boston
Phone: Liberty 2-7171
Nights & Sundays
Bolton—128

The Chemical Corp.
107 Franklyn Street
Concord, N. H.
Phone: 1591

The Chemical Corp.
169 Front Street
Building 29
South Portland, Maine

Chas. Schaefer & Son
304 Meserole Street
Brooklyn 6, New York
Phone: Hyacinth 7-2460

Chas. Schaefer & Son
Townley, New Jersey
P. O. Box 236,
Elizabeth 3, N. J.
Phone: 2-7010

Watkins Salt Company
Watkins Glen, N. Y.
Phone: Watkins 13

Harvey Salt Company
415 Guilford Avenue
Baltimore 2, Maryland
Phone: Saratoga 5030

Southern Salt Company
222 West Main St.
Norfolk 1, Virginia
Phone: 2-4638

Salt Service, Inc.
128 E. Chelten Avenue
(Reading R.R. Freight Term. (Germantown)
Philadelphia 44, Penn.
Phone: Tenn. 9-6938—39

Industrial Salt Service
Div. H'way M't'ls Co.
Groton, New York
Phone: Groton 154

Industrial Salt Service,
Inc., P. O. Box 115
Carlton Hills, N. J.
Phone: Rutherford, N. Y. 4-1266

Industrial Salt Service
Lehigh Court (Old L.V.R.R. Round House)
Niagara Falls, N. Y.
Phone: 4-2297

Industrial Salt Service of Canada, Ltd.
Montreal, Quebec, Can
Toronto, Ontario, Can.

E. J. Fedigan, Inc.
Anderson & Isabella Sts.
N. S. Pittsburgh 12, Pa.
Phone: Cedar 1-6766

Youngstown Building Material & Fuel Co.
1505 Logan Ave.
Youngstown 4, Ohio
Phone: 3-4101

A. F. Nilson, Dist. Sales Mgr., 12 Mercer Ave.
Chatham, New Jersey
Phone: Chatham 4-7608

## How the Atlanta Incinerator Earns Its Keep

Tin cans may be trash to throw away in most cities, but they are dollars in the bank in Atlanta, according to the Department of Sanitary Engineering. Last year the income from the sale of these cans amounted to $155,256. This, together with the income derived from the sale of steam generated by the plant and also by the sale of other scrap metal, gave a total income of $274,399. The operation cost of the plant was only $219,034.

The incinerator uses the rotating kiln type furnaces manufactured by International Incinerators, Walton Bldg., Atlanta, Ga. The company asserts that the high efficiencies that these furnaces produce, makes the tin cans more acceptable as scrap metal, since the tin has been thoroughly burned away.

Detailed information concerning International Incinerators may be obtained from the manufacturer. Write directly, or make use of the Post Card on the colored page in this section. Circle No. 18.

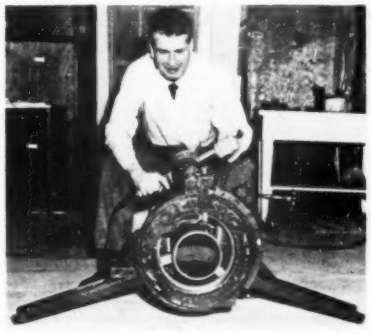
## Cuts Pipe Easily In Trenches

Recently demonstrated for the first time before a gathering of city officials in Los Angeles, Calif., the new Springload Portable Power Cutter proved its ability to cut 6-in. steel pipe in some 8 minutes. In addition, the officials witnessed in operation, a tool that could be split or separated to permit its use for cutting pipe in trenches.

Sturdily constructed, the Springload cutter features cast steel housing with high speed, heat-treated, tool-steel working bits, and sealed race ball bearings. The instrument may be powered by a ¾-in. slow-speed electric drill, an air drill, or a flexible-shaft gasoline-powered unit. Depth of the cut is automatically increased, as well as compensation for out-of-round pipe.

This new Portable Power Cutter is now being manufactured by Springload Mfg. Corp., 2412 Aurora Ave., Seattle 9, Wash., in two sizes; one for 4- to 8-in. pipe, and the other for 8- to 14-in. pipe.

Write directly to the manufacturer for descriptive material, or make use of the Post Card on the colored page in this section. Circle No. 27.



**These look like tin cans but are actually dollars in the bank. The City of Atlanta received $155,256.47 for these cans during last year's operation.**


# Are YOU *responsible for investing Pension Funds?*

Then yours is an exacting task that requires sound judgment, extensive investment knowledge, and the conservative longer term viewpoint. As administrator of pension, insurance or endowment funds, you know the need for safety, dependable yield and definite return of principal at fixed maturity dates as provided by selected high grade bonds.

There we can help you. Through our own large inventory and our active bond trading departments in Chicago and New York we make available in quantity a diversity of quality bonds. Through our 50-year specialization in bonds, notes, debentures and equipment trust certificates, we have acquired an exceptional familiarity with markets and with the investment requirements of pension funds. Send without obligation for our latest offering list.

**HALSEY, STUART & CO. INC.**

123 SOUTH LA SALLE STREET, CHICAGO 90 • 35 WALL STREET, NEW YORK 5

AND OTHER PRINCIPAL CITIES

# Now! the New Cyclo-mo

(20" TRIMMER TYPE)

## ROTARY POWER MOWER

JOINS THE FAMOUS *Cooper* LINE

Heavy full size 20" suction or lift type blade. Mows fast and clean. Readily accessible for easy sharpening. Cutting height 1⅛" to 3⅛". 4-cycle 2 HP engine.

Deck design and wheel alignment provide two outstanding features. The Cyclo-Mo will trim closer to fences, walls, sidewalks, curbs, etc., than any other mower. Knife follows natural contour of lawn because of position of offset wheels, and will not SCALP.

The specially designed blade and shroud has desirable leaf mulching action. Combination lift and blower action picks up leaves and breaks them down into a natural and beneficial mulch.

## "KLIPPER"

**Reel Type POWER MOWERS**

**18" and 20" Cutting Widths**

Fully enclosed oversize Diamond chain drive. Oversize enclosed Timken Reel bearings with automatic takeup. Unbreakable tubular steel handle. Patented, positive action, non-wearing clutch. Simple, powerful, self-locking. Extra strong, zinc die cast alloy frame. Zinc die cast alloy drive pinions with hardened steel inserts. Patented "Quick-set" height adjustment with a range of ⅛" to 2¼". Power driven weed cutter (optional equipment).

## "IMPERIAL"

**27" ROLLER TYPE POWER MOWERS**

Rubber covered steel roller and caster wheels. New positive reel adjustment and new all-steel welded deck. Powered with 3.1 HP Briggs & Stratton motor. Rubber tired Riding Sulky (optional equipment).

**Write TODAY for prices, literature and complete information**

**COOPER MANUFACTURING CO.**

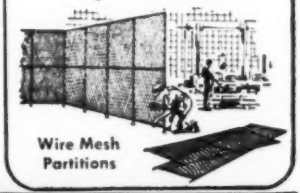
**544-546 South First Avenue** **Marshalltown, Iowa**

## Public Property PROTECTION is our business

For your protection Stewart produces chain link wire and iron picket fence; wire mesh partitions; wire window guards; steel folding gates. Also flagpoles; settees; bronze plaques and other metal specialties. Write for catalogs. Please mention products in which you are especially interested.

**THE STEWART IRON WORKS CO., INC.**
**2021 Stewart Block, Cincinnati 1, Ohio**
***Experts in Metal Fabrications since 1886***

No. 370 Settee



Wire Mesh Partitions

## Stewart IRON and WIRE FENCES

# "MEALORUB"

## CRUDE NATURAL RUBBER IN CRUMBS

**The only natural rubber powder that has proven its value in asphalt roads in use for about fifteen years.**

**AVAILABLE FOR IMMEDIATE DELIVERY**

***For further information apply***

**JACOBUS F. FRANK**

**120 Wall Street, New York 5, N. Y.**

*Representative for Indonesian Government Estates and The Indonesian Institute for Rubber Research*

## New Officials For Joslyn

Bentley S. Handwork, president of Joslyn Manufacturing and Supply Co., 20 N. Wacker Drive, Chicago 6, Ill., since 1945, has been elected chairman of the board of directors, according to a recent announcement. Mr. Handwork replaces M. L. Joslyn, who relinquished his position to become honorary chairman.

Philip W. Lotz, former executive vice-president, was elected president and chief executive officer to succeed Mr. Handwork. The new president has been with the Joslyn organization since 1920.

Succeeding Mr. Lotz is Burton M. Smalley, former vice-president in charge of manufacturing. With the company since 1918. Mr. Smalley became vice-president and director in 1936.

## Miller Appointed Assistant Technical Manager

The Permutit Co., 330 W. 42nd St., New York 36, N. Y., manufacturers of ion exchange resins and water-conditioning apparatus, have announced the promotion of Durando Miller, Jr., to the position of assistant technical manager.

A member of the Permutit organization since 1938, Mr. Miller was first conected with the sales estimating department, receiving his transfer to the technical department in 1941. In his present position he will report directly to the company's vice-president, H. L. Beohner.

Permutit Co. will send full product information on request. Write directly to the manufacturer or use the Post Card on the colored page in this section. Circle No. 23.

## Construction Firm Names Assistant Sales Manager

The Preload Construction Corp., 211 E. 37th St., New York 16, N. Y., contractors in prestressed construction, have announced the appointment of Andrew E. Tripp as assistant sales manager.

The new assistant joined the Preload organization in 1948, and spent some 3 years in the engineering department, ending with his transferral to the sales department of the operations division. In his new position, Mr. Tripp will supervise and coordinate the work of Preload district representatives throughout the country in securing contracts for the construction of prestressed tanks, pipelines, bridges, buildings, and other structures.


# Clean, dollar-saving garbage Incineration

The photograph of the Plibrico lining above, was taken after a full year's service in the Signal Hill, Calif., incinerator. Plant exterior is shown opposite.

## ...the PLIBRICO way

Plibrico knows garbage and rubbish disposal plants . . . can handle any municipal requirement. Whatever the need—redesigning and remodelling of existing plants, or new plants—Plibrico has the refractory products, the engineering knowledge, the expert installation service to give your city clean, dollar-saving incineration.

For smaller municipalities Plibrico has standard units featuring tested designs and construction that cut initial costs and provide more efficient operation. For larger requirements Plibrico design and construction service is at the disposal of the incineratorbuilder, consulting engineer and city officials to erect the most modern incinerator plant.

A long list of big installations have demonstrated the superiority of Plibrico refractory products — installations like the Cleveland incinerator plant (world's largest), Columbus, St. Petersburg, Fla., Dayton and many other cities large and small.

Plibrico Sales & Service distributors maintain stocks of Plibrico products and provide construction service for handling all incinerator needs. Your local distributor will be glad to quote on new work, remodelling or repairs. Ask for bulletin covering Plibrico designs, refractory products and construction methods.

**Plibrico Company**

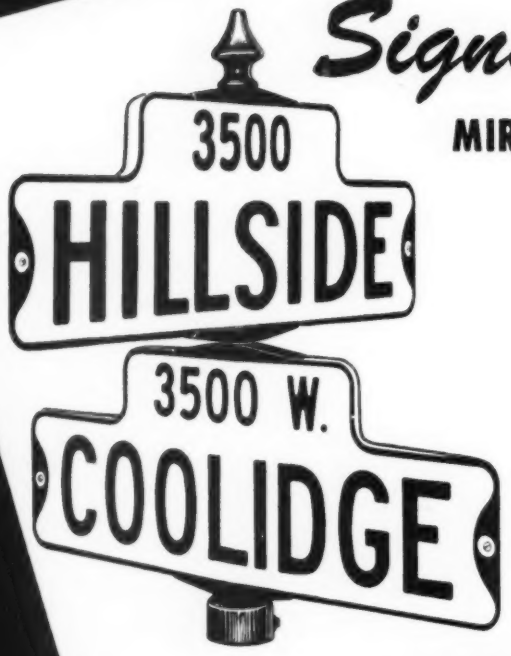
1800 Kingsbury St., Chicago 14, Ill.

PLIBRICO SALES & SERVICE IN PRINCIPAL CITIES

**REFRACTORY PRODUCTS • ENGINEERING • CONSTRUCTION**

# Signs of KNOW WHERE

## MIRO-FLEX STREET NAME ASSEMBLIES




Efficiency is a sign of good governing; Miro-Flex street markers are a sign of good efficiency. For example, this new deluxe, four-way pedestal assembly with block numbers, is complete in directions, easily read and built to last for years . . . besides being an attractive addition to your city's thoroughfare. Made of zinc-coated Bonderized steel, embossed, and finished with the best baked on enamel. *Send for your illustrated catalog today.*

Complete your present street name assembly with the new 12" x 6" block number plates. Easily attached above or below street name plates for quick readability.

1400 N.

WRITE TO
THE MIRO-FLEX CO., INC.
1824 EAST SECOND STREET WICHITA, KANSAS

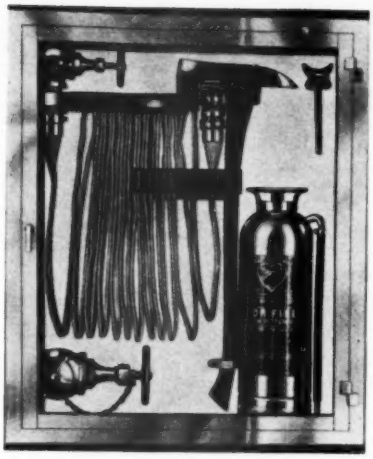
# More Jobs Per Day by FAST TRAILING - - -

## Littleford MODEL 157 TRAIL-O-ROLLER

**This Highly Portable Roller is a modern workhorse when it comes to rolling. Now Contractors, Highway Departments, Park Departments and Cities can transport this 2 to 3 ton Roller to job after job in a single day. The 157 Trail-O-Roller has a Hydraulic Lift supplying power to change from rolling to trailing or trailing to rolling position and it takes one man less than five minutes to make the change. Model 157 is sturdy, easy to handle, compact and has plenty of power. This highly portable 157 Trail-O-Roller gives compaction from 75 to 160 lbs. by adding ballast to the front and rear roll. Model 157 will roll Highways, Streets, Roads, Runways, Parking Lots, Driveways, or wherever compaction is needed. Cost-saving features make this 157 Roller the most modern unit of its kind. Write for Bulletin No. 24.**

LB LITTLEFORD
BLACK TOP ROAD MAINTENANCE EQUIPMENT
SINCE - 1900

LITTLEFORD BROS., INC.
500 E. Pearl St.
Cincinnati 2, Ohio



## Aluminum Hose Cabinet

Recently introduced by Elkhart Brass Mfg. Co., Inc., 1386 W. Beardsley Ave., Elkhart, Ind., is this satin-finish extruded aluminum hose cabinet. The cabinet trim and door may be installed after plastering to prevent damage. A typical installation, as pictured above, includes 75 ft. of $1\frac{1}{2}$-in. hose, equipped with fog nozzle; a hand extinguisher of $2\frac{1}{2}$-gallon, 500-pound capacity; a standard $2\frac{1}{2}$-in. valve for local fire department use, and a standard fireman's axe and spanner wrench. Elkhart will manufacture cabinets to specified sizes, including some which handle hand extinguishers only. Further details are yours by writing Elkhart directly, or use the Post Card on the colored page in this section. Circle No. 54.

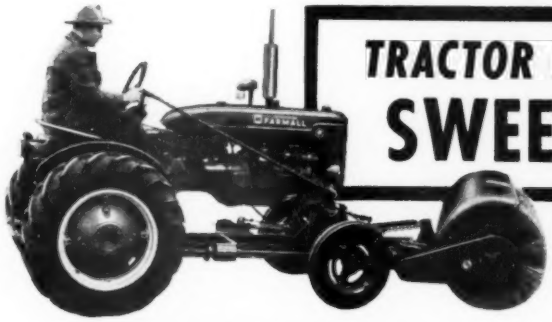
## New Diffuser Offers Saving to Large Sewage Plants

Those concerned with the operation of a large sewage-disposal plant will be interested in the claims advanced by Electro Refractories and Abrasives Corp., Buffalo, N. Y., for important reduction of costs through the use of their new aluminum oxide plate for activated sludge process sewage disposal.

The new diffuser is credited with producing at desired air volume a uniform profusion of small bubbles that do a better job of oxidizing the wastes. Increased efficiency of some 20% is claimed for the tile that must pass 80 cu. ft. of air per minute. For 40 cu. ft. tile, the boost is approximately 7%.

Several important problems were overcome to produce the diffuser plate, according to Al Saunders, Electro ceramics engineer. It had to have uniform holes that would pass at constant pressure a precise amount of air, yet, it had to be sufficiently strong to support a thousand-pound weight.

Field tests in a large mid-western city revealed the tile inert to both acids and alkalis.

TRACTOR MOUNTED
SWEEPERS

ONCE OVER and it's clean

TRACTOR SWEEPERS FOR

- INTERNATIONAL HARVESTER
- CASE
- FORD
- FERGUSON

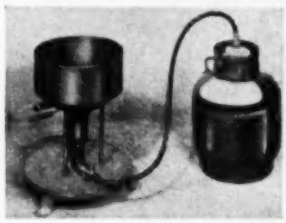
Meili-Blumberg tractor mounted sweepers assure fast, clean "once-over" sweeping on any surface, because of their many exclusive features. They're built for heavy duty service, simple, strong and efficient. All shafts turn on anti-friction bearings, with all moving parts safety protected. The support frame is adjustable to compensate for brush wear and to follow surface contour. Sweeps a 5′ path 30° to right. Hydraulic control — brush may be raised approximately 8″ to clear obstructions. Broom may be disengaged when traveling.

MB
MEILI-BLUMBERG CORP.
NEW HOLSTEIN, WISCONSIN
Graders • Highway Markers • Tractor Accessories



Insto-Gas

JUMBO FURNACE



FOR UTILITY CONSTRUCTION WORK

Now Insto-Gas offers JUMBO, an instant lighting furnace that will melt large quantities of lead, babbitt, zinc and compounds quickly. Only 15 minutes heating time required for 200 pounds of lead.

The broad base of the JUMBO furnace permits use on uneven or soft ground, and a convenient bail handle makes it easy to move on the job. Cast iron melting pots with pouring lips, tilting lugs and tilting hooks are available in 100 and 200 pound capacity.

When a 50 ft. connecting hose is used the JUMBO furnace can give service over a wide area without moving the cylinder. The flame control valve is located on the furnace.

INSTO-GAS TORCHES

Utility Maintenance departments use Insto-Gas torches for soldering, sweating copper pipe fittings, preheating and thawing.

INSTO-GAS EQUIPMENT IS LISTED BY BOTH UNDERWRITERS LABORATORIES AND FACTORY MUTUALS LABORATORIES

If your distributor cannot supply Insto-Gas send for complete information. USE THE COUPON.

MAIL TODAY

Please send information on Insto-Gas to:

Name .....

Address .....

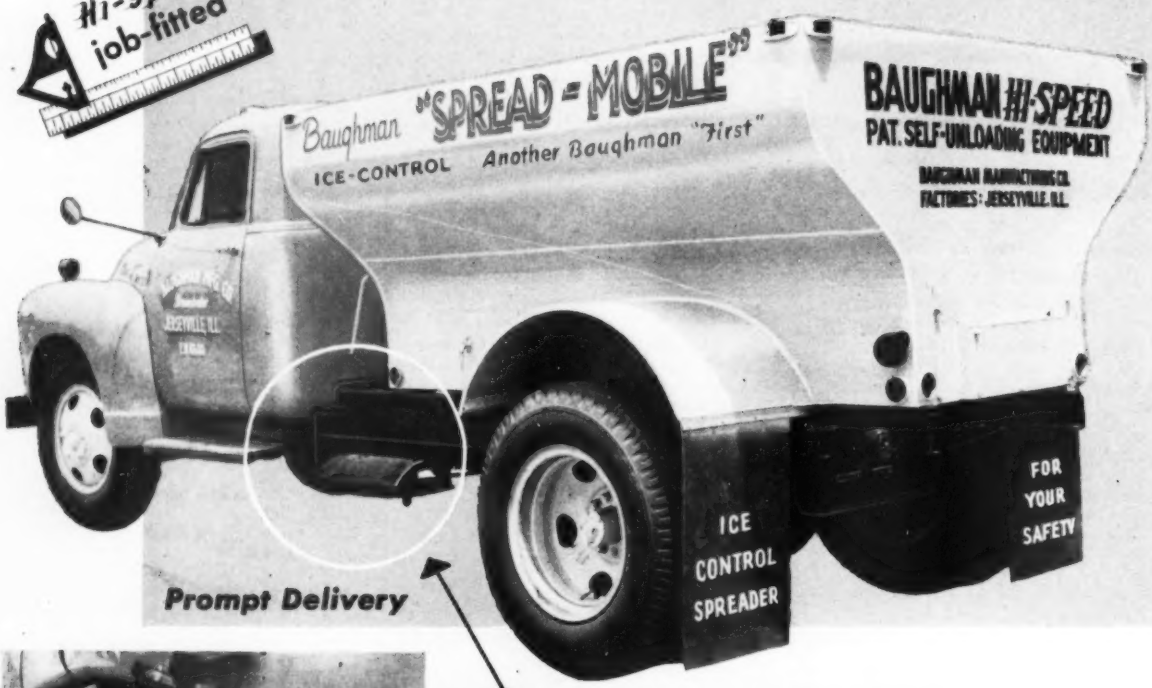
AC .....

Insto-Gas Corporation • Detroit 7, Mich.

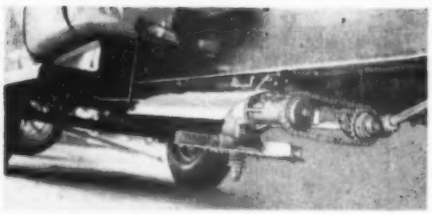
***the greatest advancement in ICE-CONTROL history!***

# BAUGHMAN SPREAD-MOBILE

Hi-Speed job-fitted




**Prompt Delivery**



Note low position of distributor above road and cab-adjusted safety baffle.

Top view showing how exhaust is utilized to heat conveyor and contents of body.

Photo of spread pattern. Note how thoroughly material is spread under rear wheels.

***Write for Bulletin A-370 today!***

1. **REVOLUTIONARY CENTER-SPREAD DESIGN**
   Spreads from *left center* of chassis—not rear of body. Spreads *ahead of rear* wheels, assuring far better traction.
2. **EXCLUSIVE EXHAUST HEATER PREVENTS FREEZING**
   Motor exhaust, channeled through patented chamber under full length of body, heats both conveyor and load — prevents freezing, helps material penetrate ice.
3. **ONE-MAN OPERATION—COMPLETE CAB CONTROL**
   All controls located at driver's seat, including chain and flight conveyor, running from rear to front of body, spreader and adjustable "safety baffle" controls.
4. **IMPROVED, ROAD-HUGGING SPREAD PATTERN**
   Lower distributor sprays material down on road, any area from 10 to 40 feet wide; greatest spread left of truck to cover entire highway.
5. **SAFETY BAFFLE PROTECTS PASSING CARS**
   Deflector can be automatically lowered from cab.
6. **ATTRACTIVE NEW STREAMLINED BODY LINES**
   Body and supports are completely sheathed in smooth, rounded sheet steel—no corners or ledges—thus insuring self-unloading.
7. **SPREADS ANY HIGHWAY MAINTENANCE MATERIAL**
   Sand, Cinders, Salt, Chips, Chat, Calcium Chloride, Gravel. Body can be reversed for oil blotting, for better skid proofing.

***Keep your roads SAFER at LOWER COST with the new Baughman SPREAD-MOBILE . . . the latest word in ICE-CONTROL!***

BAUGHMAN

***manufactured exclusively by***

**BAUGHMAN MANUFACTURING COMPANY**

**611 Shipman Rd. • Jerseyville, Illinois**

## New Helicopter Links 8 Company Plants

**A first order of business following the helicopter's arrival at the Columbus plant was a conference with Columbus General Manager A. P. Schmauch (seated). Pittsburgh-based officers who went to Columbus for the meeting are, (left to right): W. F. Rockwell, Jr., president; E. W. Ristau, vice president in charge of power tool sales, and L. A. Dixon, Sr., executive vice-president.**

A new seven-passenger S-55 Sikorsky helicopter, believed to be the first such device ever used for corporate travel, is helping Rockwell Mfg. Co. 400 N. Lexington Ave., Pittsburgh 8, Pa., solve its weighty transportation problems.

An organization composed of 17 operating divisions extending from Oakland, Calif., to Brooklyn, N. Y., Rockwell officials decided that a helicopter would prove the most practical method of transporting executives, staff members and engineering equipment between its facilities in the western part of Pennsylvania and throughout the State of Ohio.

The helicopter's home base in Pittsburgh is located on a specially marked section of the company's parking lot barely a 3-minute walk from the office of W. F. Rockwell, Jr., president of the firm. Heliports have also been prepared as inexpensively as possible on the parking lots of the seven other plants visited regularly by Rockwell representatives.

Initial operations since the first of the year have indicated that Mr. Rockwell and his associates are able to visit as many as three plants in a single working day with the new helicopter. One a day was the former average by auto or rail, with two an absolute maximum, and this often necessitated spending a night, and sometimes two, on sleepers.

The helicopter's daily schedules are determined on the basis of travel requests by officers and staff members who designate in advance their travel requirements. On a typical day, the helicopter leaves the Rockwell plant in Pittsburgh with three to five members of the organization, and sometimes with an item of equipment needed immediately by a plant on the itinerary. The first stop may be at Lestonia, Ohio, 60 miles distant where Rockwell's Crescent Machine Division manufactures woodworking equipment and radial arm saws. Forty miles away is the Barberton (Ohio) Division, where valves are manufactured, and approximately 90 miles beyond is Rockwell's Regulator Division, where gas regulators are produced, at Norwalk, Ohio. On this particular itinerary, the helicopter will enable company officials to make three two-hour stops and still return the 191 miles to Pittsburgh the same evening.

Rockwell manufactures power and hand tools, valves, meters, regulators, and numerous other metering devices and industrial products. For information on any of these, address the company, or use the Post Card on the colored page in this section. Circle No. 25.


ROADMASTER
Street Sweeper
WIRE

High Scleroscope Rating
Uniform temper.

Specially processed for high fatigue — against breakage. Long wearing. Conveniently cut and delivered in 100 and 200 lb. boxes. Prompt shipment from stock of all standard sizes.

This gutter broom wire will prove an economy in your service.

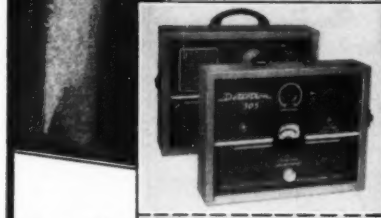
"MORE MILES PER BRUSH"

JOHNSON
Steel & Wire Co., Inc.
Worcester 1, Massachusetts
New York Akron Chicago Detroit
Los Angeles Toronto



What does the Price Tag Say?

$500.00 the COST OF BLIND DIGGING



Yes, for mere pennies a day you can have the satisfaction and security of knowing exactly where NOT to dig, — where pipes and cables are buried. Why take those unnecessary chances when the economical Detectron "505" gives you pinpoint accuracy plus greater depth. There's nothing like a "505" Pipe Detector!

7¢ per day for "505" SECURITY Insurance against Costly Preventable Accidents

Write for Catalog No. 54

THE Detectron CO.
5631 CAHUENGA
NORTH HOLLYWOOD, CALIF.



TAPAX
The Original Manhole Cushion

Takes the BANG out of manhole covers

INSTALLING TAPAX—a matter of minutes

Brush Away Dirt & Gravel

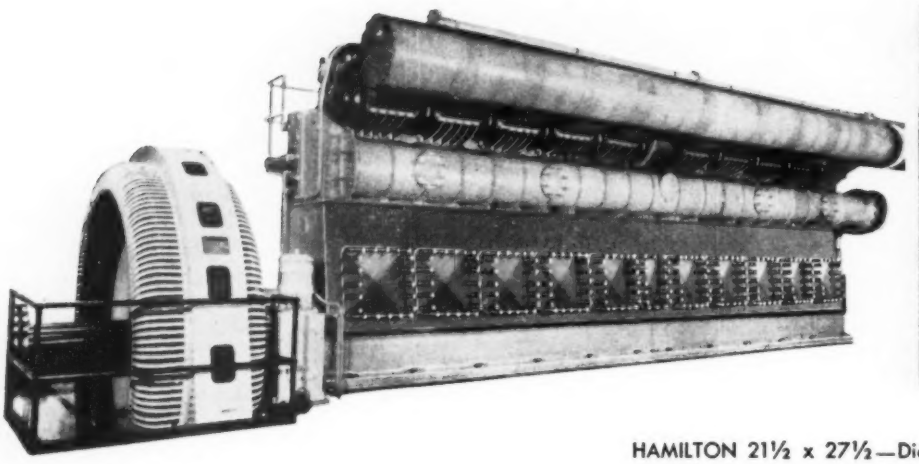
Cut Required Length

Place Tapax sticky side down

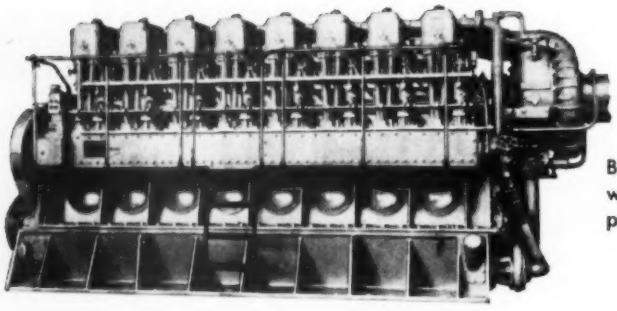
Replace Cover

*Write for Bulletin No. 10*

JOSEPH G. POLLARD CO., Inc.
Pipe Line Equipment
NEW HYDE PARK, NEW YORK



HAMILTON 21½ x 27½—Diesel and Dual Fuel Engines available in 5 to 12 cylinders with a net horsepower range from 2250 to 5450.



BALDWIN 600 SERIES—12¾ x 15½ turbocharged Diesels with 6 or 8 cylinders developing 620 to 1750 horsepower at 514 to 625 rpm.

# THRIFTIER DIESELS YOU can depend on

For consistent savings in operation and maintenance you can rely on these Baldwin-Lima-Hamilton Diesel Engines. In marine or stationary use you benefit from these inherent characteristics . . . low weight per horsepower . . . rugged construction . . . high efficiency over a wide range of output.

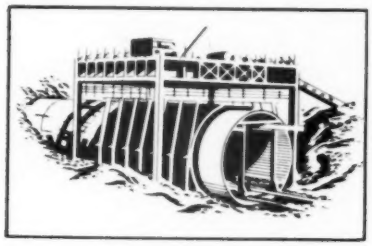
For more facts about these thrifty, dependable B-L-H Diesels, please write us, indicating the speed and load range and the application you are interested in.

**Hamilton Works**
**Hamilton, Ohio**

**BALDWIN-LIMA-HAMILTON**

## Movable Steel Forms

Movable steel forms for placing concrete linings in tunnels, mine shafts, and aqueducts are now available from Chicago Bridge and Iron Co., 2127 McCormick Bldg., Chicago, Ill.



According to company officials, the manufacturer will also design and build movable forms for pouring chimney and sewer outfalls, culverts and dam facings. The chimney and sewer outfall forms are made with outside and inside sections.

For complete details on the structures mentioned above plus travelers for moving forms, measuring boxes, and other appurtenances for use with steel forms, write the manufacturer or make use of the Post Card located on the colored page in this section. Circle No. 6.

## Brown Joins Rensselaer

Cecil A. Brown of Pine Bluff, Ark., has joined the sales force of Rensselaer Valve Co., 50 W. 50th St., New York 20, N. Y. He is scheduled to represent the company in the States of Arkansas, Missouri and Louisiana, with headquarters in Arkadelphia, Ark.

C. A. Brown

Former manager of the Pine Bluff water system, Mr. Brown is a member of the Arkansas Water and Sewage Association and of the Southwest Section of the American Water Work Association.

## Ammonia-Type Whiteprinter Speeds Reproduction

Now you can print and develop black and colored line whiteprints as fast as needed at a low operating cost.

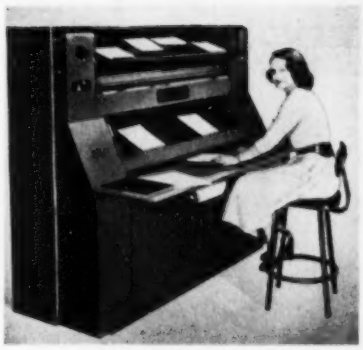
Peck & Harvey, 5650 N. Western Ave., Chicago 45, Ill., has developed the new Speed Master Model S, a medium priced, volume-production ammonia-type whiteprinter.

Using a 2000 watt high pressure Vicor jacketed glass lamp, and the dry ammonia-fume method of diazo reproduction, the Model S. prints at a speed of from 6-in. to 14-ft. per minute; develops fully at 8-ft. per minute without fading. A newly devised blower system provides cool contact glass surface.

According to Peck & Harvey, the new Speed Master is the most fume-free machine yet designed. The visible, instantly-controlled ammonia-feed prevents vapor lock, while the separate switch which gives quick control of the ammonia-fume venting blower may be left on at all times. Variable temperature control provides adjustment for different weights and grades of sensitized materials.

Another advantage of the Peck & Harvey Speed Master is its low ammonia consumption. Only 30 to 50 drops to 26 degree Baume are used per minute.

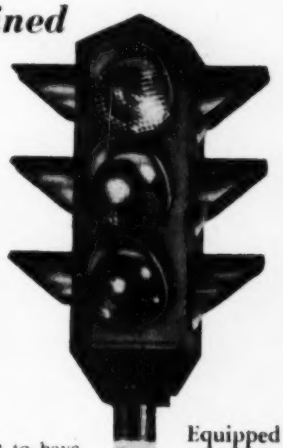
For Bulletin 52S12, write Peck & Harvey directly, or use the Post Card on the colored page in this section. Circle No. 34.



**The Peck & Harvey Speed Master Model S is simple to operate. No skill is required to make prints or keep the machine in perfect working condition.**


*New 4-way self-contained completely automatic*

**portable signal**



**WHAT A RELIEF** to the Traffic Department to have one or more of these portable signals handy for coping with rush-hour traffic congestion—or with large crowds attending special events—or with the handling of traffic via detours during street construction! Not only will the "TRAFFIC SENTRY" portable signal relieve many a traffic-problem, but it will save many traffic-officer man-hours. And when not in use, it's easily wheeled off the street by one man or transported to a distant locality on a motorcycle trailer.

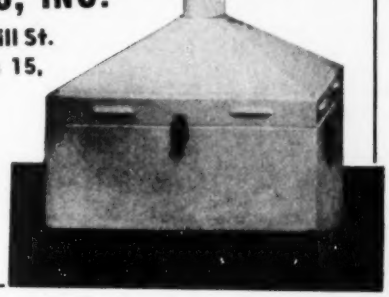
Equipped with ITE approved 8⅜-inch diameter prismatic diffusing lenses. Each lens is illuminated independently.

*Available with manual remote control.*

Write for complete information and specifications

**PORTABLE TRAFFIC SIGNALS, INC.**

**1620 South Hill St.**
**Los Angeles 15, Calif.**



# Power-Packed 100% Hydraulic Performance

*Large photo shows position of bucket when at extreme height above ground. Two small photos illustrate how, in excavation or loading, bucket follows slope of material—getting a full bucket with every stroke. Dempster-Diggster digs-in 15 inches below grade and digs out a 15 to 18 foot bank.*

## DEMPSTER-DIGGSTER OFFERS YOU BIG SHOVEL HYDRAULIC PERFORMANCE IN A SMALL, MOBILE UNIT...

**The Dempster-Diggster is the only small shovel that offers you all these basic and important features of big shovels—*Simultaneous and Independent Crowd and Hoist . . . Hydraulic Crowding . . . Hydraulic Hoisting . . . Variable Crowd Action at any Dipper Position . . . Changeable Buckets.***

**With these big shovel features, plus truck speeds on the job, and to and from jobs, the Dempster-Diggster enables you to speed up production for greater profits on jobs requiring excavation or loading!**

**Write for complete facts on this revolutionary, power-packed shovel. A product of Dempster Brothers, Inc.**

DEMPSTER DIGGSTER
TRADE MARK REG.

**DEMPSTER BROTHERS**
**853 Dempster Bldg., Knoxville 17, Tenn.**

## City Parks Get New Plant Food

The development laboratory of Oswego Soy Products Corp., Oswego 10, N. Y., recently introduced Feralon, a new plant food and soil conditioner combination for application on the lawns and gardens of city parks. Based on soy protein supplemented with additional phosphates and potash, Feralon is said to be one of the first mixed fertilzers to incorporate the newly developed fritted trace elements (F.T.E.), a source of essential nutrients that will not harm tender plants.

The fritted trace elements contained in Feralon are described by the manufacturer as insoluble elements that may be safely applied in any quantity. Plant roots extract what they need when they contact the fritted particles, rendering possible overdoses ineffective. The addition of vitamin $B_1$ and antibiotics in Feralon further stimulates plant growth, as does the organic nitrogen which is released over a long period of time, slowly forming a reservoir of plant food in the soil.

Feralon is available in a highly refined, free-flowing powder form, easy to apply. It comes in 5, 10, 25 and 50-pound packages. Detailed literature may be obtained by writing the company, or use the Post Card on the colored page in this section. Circle No. 48.

The Elkhart Three-Wheel Jobster.

## Speedy Meter Reading Calls and Parking Meter Collections

Now you can attend to those meter-reading calls and parking-meter collections quickly with the Elkhart 3-Wheel Jobster, an easy to ride, new gasoline-powered vehicle.

Manufactured by the Hatfield Engineering Co., 1300 N. Bristol St., Elkhart, Ind., the completely hand-controlled Jobster was designed with automatic drive, friction reverse and quick-action brakes. A large trunk at the rear of the vehicle provides ample space for light and semi-heavy goods.

No foot operation is necessary with the Jobster. A 2½-hp motor develops speeds up to 25 mph, averaging 80 to 100 miles on one gallon of gas.

Learn more about the Elkhart 3-Wheel Jobster by writing the company, or turn to the colored page in this section and make use of our Post Card. Circle No. 13.


here's how to cut costs... save manpower and raise health standards in your city:

...of course, it's electric!

Progressive communities everywhere are requiring food waste disposer installations in all new home construction. It's one way to combat rising costs of garbage collection. Each installation helps *improve* service department efficiency and raises health standards because food waste is disposed of *before* it becomes garbage.

WESTINGHOUSE ELECTRIC CORPORATION
Electric Appliance Division • Mansfield, Ohio

Westinghouse
FOOD WASTE DISPOSER

YOU CAN BE SURE...IF IT'S Westinghouse

**This →**

**can turn a catastrophe into a mere inconvenience!**

When you prepare for trouble with a "U.S." Stand-by Electric Plant, you guarantee that a power failure will not cause loss of life and property! Write for information, stating type of power you need. The "U.S." complete line includes both AC and DC units from 300 watts to 200 KW.

**United States Motors Corp.**
**420 Nebraska St. Oshkosh, Wis.**

UNITED STATES MOTORS CORPORATION — U.S. — OSHKOSH, WISCONSIN

## Ferro street signs give you VISIBILITY — PERMANENCE

A welcome sign is "Ferro"—the instant answer to the question: "Where Are We?" Clean, clear, permanently brilliant "Ferro" signs are genuine porcelain enamel fused on finest quality steel. Embossed. **Always** easy to read.

Nationally known, tested, **proved** "Ferro" signs on any street, road or highway are **the sign of good government.**

Write today for full details.

**FERRO ENAMELING CO.**
**1100—57TH AVENUE OAKLAND 21, CALIF.**

## ZONE-LAC

**Wears 3 to 5 Times Longer Than Ordinary Street Paint as Shown by Photos of Competitive Tests Below:**

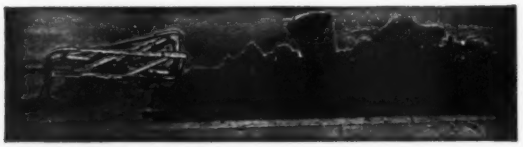
**BUY BY TEST!**

TESTS OF TRAFFIC PAINTS BY CITY OF LOS ANGELES and after eleven months of heavy traffic, here's how the competitive paints looked. Tests proved ZONE-LAC best. No question about lines 12, 13 and 14 standing up best under heaviest traffic! They show soil but little wear. And these line are ZONE-LAC!

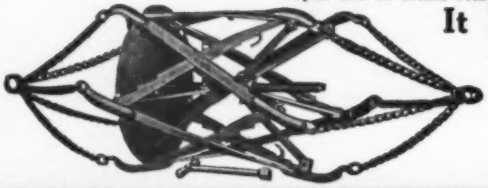
*Send us your bids and specifications for prices and samples on your traffic paint requirements whether plain or reflectorized.*

**J. E. BAUER CO. & PRISMO CALIFORNIA CO., 1021 N. Mission Rd., Los Angeles 33, Calif.**

## EXPANDING ROOT CUTTER & SEWER CLEANER



Open and in action removing roots and caked sediment like this.



**It Fits in on Every Sewer Cleaning Job**

**Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.**

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

***Write for our new catalog on complete sewer cleaning equipment.***

**EXPANDING SEWER MACHINE COMPANY**
**108 East Walnut St. Nappanee, Ind.**

## Two-In-One Unit Saves Labor in Public Washrooms

Electric-Aire Engineering Corp., 209 West Jackson Blvd., Chicago 6, Ill., has introduced a new device to save on the time and labor spent in cleaning public washrooms. It is Cee Loc, a dual purpose toilet stall door lock and cigarette shelf designed to eliminate the cigarette litter commonly found in toilet stalls.

With this two-in-one unit, a person merely exerts a slight pressure on a button which locks the stall door. At the same time, a clean cigarette shelf is lowered, ready for use. To unlock the stall door, one simply raises the cigarette shelf. Ashes and butts are automatically emptied into the container.

Aside from providing a clean, safe place to lay cigarettes, a facility aimed at creating public good will the cigarette butt and ash container are made of a specially treated, acid proof, non-rusting steel, eliminating the need for replacing or repainting marred fixtures.

The completely enclosed ash and butt container is quickly and easily emptied through the use of a special key supplied by the manufacturer. Each container holds the equivalent of a full package of cigarettes; requires only occasional emptying.

For full data on this new, modern convenience conceived, designed and produced by Electric-Aire, write the company, or use the Post Card on the colored page in this section. Circle No. 46.

## Philadelphia Fire School Gets Fork Lift Truck

Philadelphia firemen are learning to operate fork lift trucks found on the scene of warehouse and industrial fires as though they were a part of their own fire-fighting equipment, reports E'mer F. Twyman, vice-president of The Yale & Towne Mfg. Co., Yale Materials Handling Div., Philadelphia, Pa. Mr. Twyman recently presented a Yale gasoline fork truck to the Philadelphia fire school, for use in training men in their operation.

According to Mr. Twyman, there are often fork lift trucks and other materials handling equipment available in the plants that are threatened by blazes. Once firemen know how to operate this equipment, they will be able to remove the material blocks and get at the source of the fire immediately.

A Yale materials handling expert is conducting the new Yale lift truck operator training program at the school, giving each man a complete course in operation, maintenance and management.

Further information about the Yale fork lift truck may be obtained by writing the manufacturer, or or turn to the colored page in this section and take advantage of the Post Card. Circle No. 50.


DRY PHOTOCOPIES AUTOMATICALLY!

ALL ELECTRIC!

APECO Systematic Auto-Stat

EXPOSE!

PROCESS!

COPIES PEEL APART!

ONE UNIT DOES IT ALL!

**Makes photo-exact copies direct from original letters, forms, bids, contracts, invoices, catalog sheets, reports, blueprints.**

Yes—now a dry photocopy from any original in less than 45 seconds without any additional equipment. The Apeco Systematic Auto-Stat prints, processes and dries automatically . . . copies are ready for instant use. It saves up to 80% on copying jobs. Eliminates costly re-typing, hand copying, checking or expensive outside copying service. It's fast—only 2 steps will make legally accepted prints from any original up to 11x17 inches—printed on one or two sides.

SO LOW COST

A complete Apeco Systematic Auto-Stat installation is priced well within the budget of even the smallest firms. Remarkably low operation cost, too!

MAIL TODAY!

HAVE YOU READ THIS NEW FREE BOOK?

American Photocopy Equipment Co.
2849 North Clark St., Chicago 14, Ill. Dept. AC-53

Please rush me, without obligation, your factual report on office copying. I understand this free booklet pictures and tells the complete Auto-Stat story and shows how I can use Apeco Auto-Stat in my office.

Name_____

Firm_____

Address_____ Zone___ State_____

City_____

Offices in All Principal Cities

Manufactured in the U.S.A. by
AMERICAN PHOTOCOPY EQUIPMENT COMPANY
2849 N. CLARK STREET CHICAGO 14, ILLINOIS

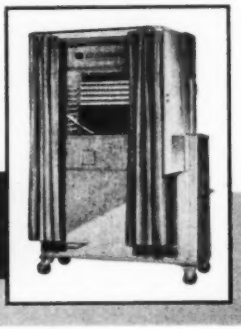
3rd of a series

# COLUMBUS, OHIO VOTERS LIKE THEIR AUTOMATIC VOTING MACHINES

"In their first stern local test the machines performed in a most commendable fashion, giving complete results less than four hours after the official closing time of the polls.

"When all factors are considered this was an amazing performance. . . . No comparison between the machines and pencil and paper method of balloting and tabulating."

—Editorial comment Ohio State Journal 5-10-52.



COLUMBUS, OHIO USED 125 AUTOMATIC VOTING MACHINES AT THE ABOVE MENTIONED PRIMARY ELECTION, MAY 6, 1952

**AUTOMATIC VOTING MACHINE CORP.**
JAMESTOWN, NEW YORK

## PENTHOUSE AWNINGS *can't Blaze*

**FLAMEFOIL* CANVAS—**

. . . for this awning was specified for use atop one of Philadelphia's most exclusive apartment-hotels.

Year-round exposure demanded the best in fire safety and tensile strength.

*Manufactured under Patents Nos. 2,014,176 and 2,299,612 . . . others pending

**RESISTANT to**
- FIRE
- WATER
- WEATHER
- MILDEW

Approved by all recognized safety authorities.

**PHILADELPHIA TEXTILE FINISHERS, Inc.**
105 Lafayette St. Norristown, Penna.
PROCESSORS OF FLAME-RESISTANT FABRICS

## *A STATEMENT* OF ADVERTISING PRINCIPLES

1. Good Advertising— aims to inform the consumer and help him to buy more intelligently.

2. Good Advertising— tells the truth, avoiding misstatement of facts as well as possible deception through implication or omission. It makes no claims which cannot be met in full and without further qualification. It uses only testimonials of competent witnesses.

3. Good Advertising— conforms to the generally accepted standards of good taste. It seeks public acceptance on the basis of the merits of the product or service advertised rather than by the disparagement of competing goods. It tries to avoid practices that are offensive or annoying.

4. Good Advertising— recognizes both its economic responsibility to help reduce distribution costs and its social responsibility in serving the public interest.

*Advertising Federation of America*

## New Lawn Mowers

To supplement the wide range of garden tractors and rotary mowers already produced by this company, Bolens Products Div. is now introducing a new line of reel type lawn mowers—the 1.1 hp 18-in. Deluxe; 1.6 hp 21-in. Deluxe, and 1.1 hp 18-in. Special, each of which is equipped with semi-pneumatic tires and sectionalized hardwood rollers.

Both the 18- and 21-in. Deluxe models are reported to include such advantages as single throttle levers for fully automatic drive; overriding spring clutches for straight-line starting and operating; exclusive clutch neutralizers to prevent reels from revolving accidentally and free floating handles to guard against shocks and jars. Cutting heights are adjustable from 5/8- to 2 in. by single bolt all-steel brackets, and 5 self-sharpening blades revolve at 640 rpm.

For information on reel-type lawn mowers, write Bolens Products Div., Food Machinery and Chemical Corp., Port Washington, Wis., or turn to the colored page in this section and use the Post Card. Circle No. 3.

## Fluid Level Aids in Road Improvement

How to get a better road from the base to the surface course? Foote Construction Equipment Div. of Blaw-Knox Co., 1904 State St., Nunda, N. Y., manufacturer of the Adnun Black Top Paver, claims it has the answer in Fluid Level.

Fluid Level, says the manufacturer, makes possible the absolute control of the level characteristics at the center of a street, and does it regardless of subgrade or base conditions. Attached to the Black Top Paver, the new device aids in laying stabilized material, crushed stone, or any asphaltic mixes. The control of the level qualities of any of these materials results in improved densities, hence, superior roads.

Information on how to improve the roads in your municipality is available from the manufacturer, or turn to the colored page in this section and use our Post Card. Circle No. 45.

Easily reaches top of 90-foot trees. Perfect for parks, golf courses, playgrounds, swimming pools, tourist courts, picnic grounds, etc.

**PROTECT trees, shrubs and grass with *IRON AGE* MIST SPRAYER**

Users everywhere are praising the performance of Oliver Iron Age Mist Sprayers wherever insect pests are a problem. For here's the greatest sprayer ever developed for effective, low cost pest control.

Just look at the outstanding features of this Oliver Iron Age Model 125. Rugged 22 hp, 4-cylinder Wisconsin engine drives sturdy cast aluminum axial flow fan at 87% efficiency, delivering 6,000 to 11,000 cubic feet of air per minute at 90 to 125 mph. Efficient spray jets meter *exactly* the right amount of mix, either oil or water, to center of high velocity air stream, insuring complete misting of concentrate. Spray jets can be changed quickly to alter droplet size. Turret rotates 360° for full control of air blast.

Find out how Iron Age Mist Sprayers can make your pest control program *far more effective at less cost*. Mail coupon below for complete information.

**IRON AGE MIST SPRAYERS give you these advantages:**

- Greater community health and comfort
- Superior control of tree pests, flies and mosquitoes
- More efficient use of power, materials, labor and equipment

OLIVER

IRON AGE

*Finest in Farm Machinery*

**MAIL TODAY FOR FREE INFORMATION**

**THE OLIVER CORPORATION, Dept. 36, 400 W. Madison St., Chicago 6, Illinois**

Gentlemen: Please send me information on Iron Age Mist Sprayers.

Name.....

Title.....

Address.....

City..... State.....

# Speed and simplify all your tax accounting

with this

# BURROUGHS TAX ACCOUNTING MACHINE

**It computes . . .**
**as it types . . .**
**as it posts!**

The Burroughs Tax Accounting Machine offers you the most practical and satisfactory means of automatic mechanization in tax accounting. In *one operation* it will multiply; compute and total tax installments; write records, tax receipts, bills; accumulate column totals.

This Burroughs is the only typewriter-accounting machine with direct multiplication. The operator simply enters each valuation. The machine *automatically* multiplies it by the tax rate, computes the answer to the nearest cent and *posts factors and answer* to tax bill, receipt and tax record. The tax rate can be changed instantly. These automatic Burroughs features eliminate much work and virtually eliminate the chance for human error.

**For Today and Tomorrow**

Here is a machine that performs an amazing variety of bookkeeping operations and produces tax records with infinite variations . . . it will be of just as much value to you tomorrow as it is today. It has the flexibility to handle *all* of today's tax accounting complexities. It will easily be adaptable to any possible future changes in tax accounting methods or procedures.

Find out how Burroughs Tax Accounting Machines can help you. Just call your local Burroughs office or use the coupon.

*MAIL THIS COUPON for your copy of "New Speed, Ease, Simplicity in Tax Accounting." It explains in detail the versatility and flexibility of Burroughs Tax Accounting Machines.*

*Mail this coupon!*

**Burroughs Adding Machine Company**
**Detroit 32, Michigan**

I would like to see a copy of "New Speed, Ease, Simplicity in Tax Accounting."

Name_____

Department_____

Street_____

City_____ State_____

*WHEREVER THERE'S BUSINESS THERE'S*

**Burroughs**

## Arcadia, Calif., Installs Colored Street Signs

While other cities in Southern California have adhered to dark-background street-name signs, Arcadia, through the cooperation of City Engineer Raymond Rogers, City Manager William Richards, and the U. S. Porcelain Enamel Co., 4635 E. 52nd Dr., Los Angeles 22, Calif., has introduced a rich brown background sign. Not only does the color make for individuality, but the name of the city also is printed in the lower corner of each sign. The colored background signs and 4-in. letters offer equal or greater legibility when compared with black and white street signs.

City Manager Richards says that the new signs improve the general appearance of the city and identify Arcadia to motorists.

Further details are available from the manufacturer, or use the Post Card on the colored page in this section. Circle No. 61.

## Electric Hand Dryer De-Odorizes Washrooms

Here is a device that eliminates costly and troublesome paper and cloth towel problems in public washrooms, and at the same time destroys all objectionable odors. It is the new American Dryer, an automatic hand dryer employing a specially developed General Electric ozonating system.

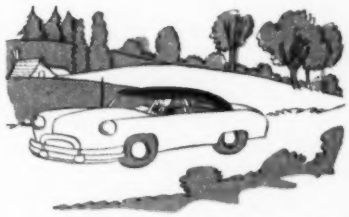
According to the manufacturer, the unit has an Ozonaire system which works constantly, converting oxygen into odor-destroying ozone, to keep washroom air fresh without introducing astringent odors. In addition, the dryer does away with the nuisance of littered washrooms and plumbing repairs due to stopped-up toilets.

Housed in a streamlined white porcelain and chrome cabinet, it just takes a press of the chrome starter to produce a gentle, yet effective stream of warm air from the nozzle—drying hands completely in 18 seconds. An accurate timing device turns off the motor and heating elements at the end of a 30-second cycle so that power expenditure is held at an insignificant level. The nozzle, which revolves on a 360-degree cycle, may also be turned for face, under-arm and body drying.

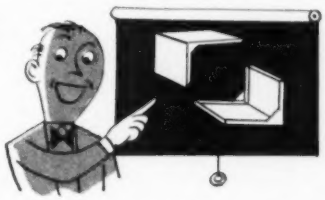
Literature and prices will be sent by American Dryer Distributing Corp., 1324 Locust St., Philadelphia 7, Pa., or use the Post Card on the colored page in this section. Circle No. 65.


# Here's 4 reasons why—

## RCA is your best buy in 2-way radio

1. 

**Top performance in tough territory** . . . razor-sharp reception in areas crowded with adjacent stations . . . where spurious signals may cause interference.

2. 

**Single-unit design for easy installation** . . . case mounts on floor or wall of vehicle; right or left hand. Takes less space, provides easy access for servicing.

3.

**Rugged construction for rough duty** . . . vibration tested, shock tested. Treated to resist humidity, to operate in arctic or tropic weather.

4.

**RCA-built, RCA-serviced for complete satisfaction . . .** backed up by the world's greatest name in radio. Performance exceeds FCC requirements. Uses standard easy-to-get tubes. Continuing service provided by RCA Service Company if desired.

**Get full story . . . mail coupon TODAY**

Dept. Q4. RCA Engineering Products, Camden, New Jersey

Please send me my FREE copy of illustrated booklet on how RCA 2-way radio can help me in my business checked below:

☐ General industry (Utilities, Construction, Petroleum, Lumber, Mining, etc.)
☐ Transportation (Truck, Bus, Taxi, etc.)
☐ Public safety (Police, Fire, Ranger, etc.)

Name_____ Title_____

Organization_____

Address_____ City_____ State_____

RADIO CORPORATION of AMERICA
MOBILE COMMUNICATIONS CAMDEN, N.J.

# You Can't Beat Steel Pipe for Strength

Bethlehem Tar-Enameled Steel Pipe is widely used for water and sewage service because of its resilience, resistance to shock and corrosion, and leakproof joints. But the most important reason for its popularity is its great strength, which is evident in the chart below.

The chart shows the theoretical working and bursting pressures for various pipe diameters and thicknesses. The pressures shown are based upon the use of steel conforming to ASTM Specification A-283, Grade B, having a minimum ultimate tensile strength of 50,000 psi. When exceptionally severe working pressures are encountered, the use of higher strength steel is recommended for greater economy. The nearest Bethlehem office will be pleased to supply complete information.

## THEORETICAL INTERNAL PRESSURES OF STEEL PIPE

| | 1/4 in. | | | 5/16 in. | | | 3/8 in. | | | 7/16 in. | | | 1/2 in. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIAM | WT LB/FT | MAX WRK PRESS PSI | MIN BURST PRESS PSI | WT LB/FT | MAX WRK PRESS PSI | MIN BURST PRESS PSI | WT LB/FT | MAX WORK PRESS PSI | MIN BURST PRESS PSI | WT LB/FT | MAX WORK PRESS PSI | MIN BURST PRESS PSI | WT LB/FT | MAX WORK PRESS PSI | MIN BURST PRESS PSI |
| 22 | 63 | 365 | 1135 | 78 | 465 | 1420 | 93 | 550 | 1700 | 109 | 640 | 1985 | 124 | 730 | 2270 |
| 24 | 69 | 335 | 1040 | 86 | 420 | 1300 | 102 | 505 | 1560 | 119 | 585 | 1820 | 136 | 665 | 2080 |
| 30 | 86 | 270 | 835 | 108 | 340 | 1040 | 129 | 405 | 1250 | 150 | 475 | 1455 | 170 | 535 | 1670 |
| 36 | 106 | 225 | 695 | 130 | 280 | 870 | 155 | 340 | 1040 | 181 | 395 | 1210 | 206 | 445 | 1390 |
| 42 | 119 | 195 | 595 | 148 | 240 | 745 | 177 | 285 | 890 | 206 | 335 | 1040 | 234 | 380 | 1190 |
| 48 | 137 | 170 | 520 | 171 | 210 | 650 | 203 | 250 | 780 | 236 | 290 | 910 | 268 | 330 | 1040 |
| 54 | | | | 192 | 190 | 580 | 230 | 225 | 695 | 267 | 260 | 810 | 303 | 295 | 925 |
| 60 | | | | 214 | 170 | 525 | 255 | 200 | 625 | 296 | 235 | 730 | 336 | 265 | 835 |
| 72 | | | | | | | 309 | 170 | 520 | 359 | 195 | 605 | 408 | 220 | 695 |
| 84 | | | | | | | 357 | 145 | 450 | 412 | 170 | 520 | 470 | 190 | 595 |
| 96 | | | | | | | | | | 470 | 145 | 455 | 539 | 165 | 520 |
| 108 | | | | | | | | | | | | | 611 | 150 | 465 |
| 120 | | | | | | | | | | | | | 669 | 135 | 415 |

The recommended minimum wall thickness is approximately the pipe diameter divided by 165. Pipe having this diameter-thickness ratio, when backfilled and properly tamped, will withstand any depth of cover.

For buried pipe, the recommended minimum thicknesses are shown immediately above heavy black line.

$$P = \frac{t \times Ts}{r}$$

P = internal pressure, psi
t = thickness, in.
Ts = allowable unit stress = 60% x 27,000 (yield point) = 16,000 psi
r = radius of pipe, in.

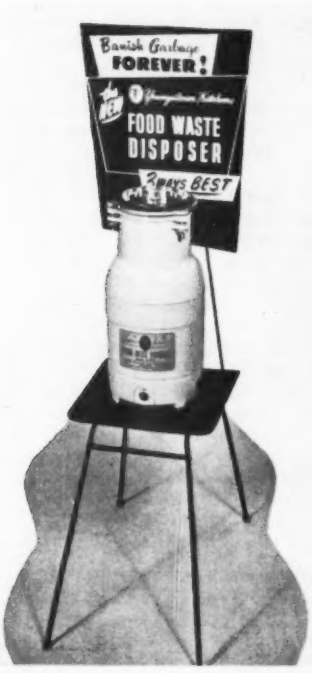
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

**BETHLEHEM *Tar-Enameled* WATER PIPE**

## A Food-Waste Disposer Display in City Hall




**This disposer display package designed to raise the sanitation standards of the community, offers a first-rate solution to the garbage problem.**

Five years ago most city officials didn't know and didn't care what kitchen food disposers were. As a result, many cities prohibited their installation on the expectation that ground garbage would clog the sewers and overload the sewage-treatment plant. Many other cities did not prohibit them only because there weren't enough of them to pose a question.

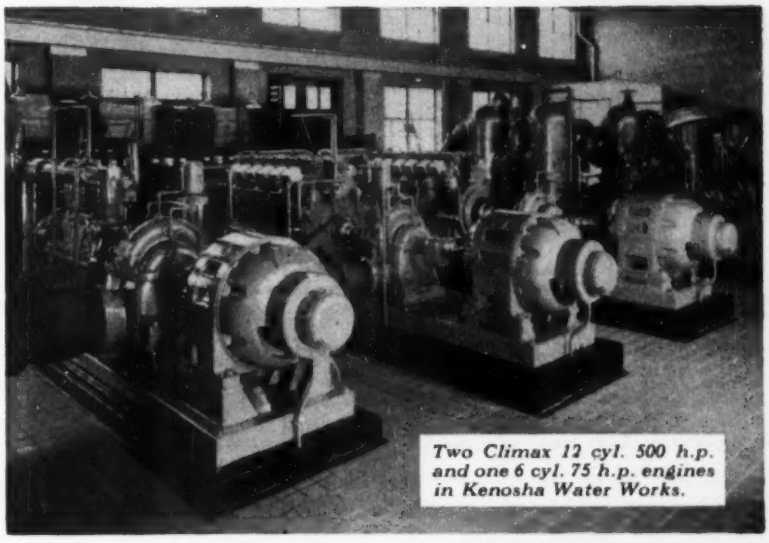
Today, as a result of intensive instruction and discussion in THE AMERICAN CITY and the *Municipal Index*, city officials generally know that the more food waste is ground in the kitchen, the less garbage must be collected and burned or dumped. The less garbage, the fewer flies and rats, and the higher the sanitation standards of the community.

Many cities are aware of the future possibilities for elimination of all food waste and the disappearance of the entire garbage problem. It is a project that requires citywide understanding and approval. Cities desiring to achieve this will be interested in the disposer display package pictured here. The dealer package also contains a window card and 25 Youngstown Kitchens food-waste disposer mailing pieces.

Further information about these food-waste disposers may be obtained by writing directly to Appearance Div., Mullins Mfg. Co., Warren, Ohio, or take advantage of the Post Card placed for your convenience on the colored page in this section. Circle No. 66.


# climax BLUE STREAK ENGINES

## PROVIDE DEPENDABLE PROTECTION



*Two Climax 12 cyl. 500 h.p. and one 6 cyl. 75 h.p. engines in Kenosha Water Works.*

ON RECOMMENDATIONS of Alvord, Burdick & Howson, Engineers, the Water Works Department of the City of Kenosha, Wisc. elected to abandon rather than enlarge the existing steam plant and spent approximately $200,000.00 in modernizing and enlarging its pumping station.

Improvements included the addition of two motor driven 9 MGD high lift and one motor driven 10 MGD low lift centrifugal pumps. To provide dependable standby protection each of the high lift pumps is also direct connected through a quick detachable coupling to a 500 H.P. Climax gasoline engine and the low lift pump is similarly connected to a Climax 75 H.P. gasoline engine.

The present total capacity, including an existing 15 MGD motor driven pump, is 43 MGD, or 28 MGD SAFE capacity protected by standby engines. This is estimated to be ample for fire and domestic needs for an anticipated population of 170,000 by 1970.

**In the Sewage Treatment Plant at Kenosha two Climax 75 H.P. sewage gas engines have been driving raw sewage pumps since 1940. Each of these engines has given over 59,000 hours of service.**

climax

**ENGINE AND PUMP MFG. CO.**

*Factory and General Office:* Clinton, Iowa
*Regional Offices:* Chicago, Ill., Dallas, Texas

**BRAXMAR BADGES**

**Standard Badges Since 1879**

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

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**C. G. Braxmar Co., Inc.**
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Complete line of playground, home, playschool Play Devices.

ASK FOR

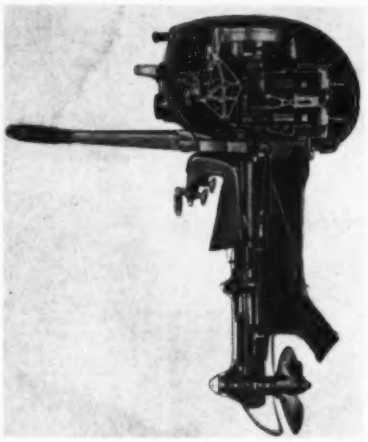
special literature: catalog, price list, complete specifications and drawings, booklet

"PLANNING YOUR PLAYGROUND"

**THE J. E. BURKE PLAYGROUND EQUIPMENT CO.**

*Factories at*
Fond du Lac, Wis.
Box 986, New Brunswick, N. J.


## About Outboards Motors



**The insides of an outboard motor. When there's a police or fire call for rescue or search on the water, a Johnson Seahorse never says "neigh."**

In view of the growing use of outboard motor boats by fire and police departments, a 16-page study of "Outboard Motors and Their Operation," issued this year by The Texas Company, may prove of interest to city officials.

The snarl of a wide-open motor early in the morning is eloquent of the application of controlled power. The two-stroke-cycle principle is more commonly used in outboard motors. In this type of engine, the operating cycle is completed in one revolution of the crankshaft. The fuel mixture is introduced (usually to the crankcase through valves and into the cylinder through ports located in the lower part of the cylinder which are uncovered as the piston travels toward the bottom of its stroke) and compressed on the upper movement of the piston. At the proper instant, the mixture is fired by the spark plug, and power is imparted to the piston which is forced down. During the downward movement of the piston, the exhaust ports are also uncovered to vent the exhaust gases. The number of strokes has thus been reduced to two, intake and compression on the upward stroke with power and exhaust on the downward stroke, thus giving the two-stroke-cycle engine its name. In these engines the lubricant is mixed with and carried by the fuel into the engine through the crankcase. As the oil enters the crankcase, it is in a very finely divided state and in this form bathes the bearings and other moving surfaces with a protective film. An equilibrium is soon established within the engine, balancing oil requirements against the oil supplied. Any oil not required for lubrication continues to be carried with the fuel and is burned rather than dropped out to accumulate in the engine.

There are several advantages in using the two-stroke-cycle principle in outboard motors. One of the main reasons being the good ratio of horsepower to weight, resulting from twice as many power strokes in the two-stroke-cycle engine as there are with the four-cycle engine for any given number of revolutions. Other advantages would include the elimination or reduction of complex valve, lubricating, and electrical systems, all of which add weight.

**In supplying this example of accessibility, Evinrude Motors reports the development of a twin-chambered accoustically tuned carburetor intake silencer which, when combined with motor exhaust, reduces motor operating noise about 22%.**

The newest outboard motor features which have been receiving considerable

(*Continued on page* 237)


**BAVIN**
**GLASS BEAD DISPENSER**

for
- STREET
- HIGHWAY
- AIRPORT MARKING

EASILY AND QUICKLY ATTACHED TO ANY STRIPING MACHINE

**G. D. BAVIN CO.** 2500 WEST SIXTH STREET BUILDING LOS ANGELES 5, CALIFORNIA

## About Outboard Motors

(*Continued from page 237*)

attention are the remote controls. The use of these controls will, to all intents and purposes, release the operator from the position in the stern of the boat. They are attached to the motor by snap-on connections that require no tools and, thus, afford the operator considerably more freedom of movement. As a matter of fact, cruiser hulls are available now which have been designed for single and twin-outboard installations and when using the remote controls, offer all the conveniences of an inboard installation. In addition, the outboard power source results in a net saving of room, a decided advantage on the water.

The proper preparation of an outboard for storage during periods of inactivity is very important. The cooling system should be flushed with fresh water, the fuel lines should be drained and the carburetor cleaned — do not leave any gasoline in the auxiliary tank. The lubricant in the lower gearcase should be changed to eliminate any water present. The sparkplugs should be removed and dipped in heavy-duty motor oil and one or two tablespoons of oil poured into each cylinder. The plugs should be replaced and the motor turned a few times to distribute a protective film of fresh oil over pistons, cylinder walls and gears. Having completed these preparations, the motor should be wiped with an oily cloth and wrapped in heavy paper or canvas. When stored, outboard motors should be kept in an upright position.

For a copy of "Outboard Motors and Their Operation," (January 1953 issue of *Lubrication*), write The Texas Company, 135 E. 42nd St., New York 17, N. Y., or use the Post Card in this section. Circle No. 30.

## Protect Submerged Surfaces Against Corrosion

Protecting masonry, metal and wood surfaces against the corrosive action of severe chemicals and water has always been difficult, but when you're dealing with submerged surfaces, the problem becomes acute. That is why Inertol Co., Inc., 480 Frelinghuysen Ave., Newark 5, N. J., has made available a chlorinated rubber coating known as Torex, an enamel which works equally well in or out of water.

Now in use in such diversified industries as public water works, petroleum and chemical industries, breweries, bottling plants, dairies and packing plants, Torex successfully combats corrosive conditions caused by acids, alkalis, bleach solutions, chlorine gas and high humidity.

More detailed information is yours by addressing Inertol and requesting the brochure, "Chemical Resistant Enamels," or you may use the Post Card placed for your convenience on the colored page in this section. Circle No. 17.


FIRST ...to

PRESENT THESE METER SERVICING CONVENIENCES

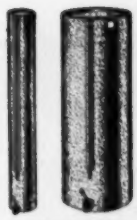
Ford developments and inventions are characterized by their ingenious and practical approach to difficult problems in the setting and testing of water meters. Here are shown but a few of FORD'S FIRSTS . . . each a pioneering achievement still extensively used and imitated. Refer your problems to FORD FIRST.

LIFTER WORM LOCK

The original Ford Worm Lock was introduced almost forty years ago. Because of its simplicity, safety and powerful screw-jack action it is now widely used. The Lifter feature, a recent improvement, provides automatic attachment of the key on unlocking.

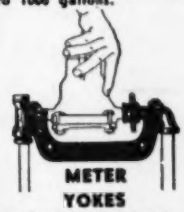
*The* COPPERHORN

The Copperhorn makes an ideal meter setting in most basements. It provides an all-copper waterway and physical support for customer piping. Frequently it saves more than its cost in pipe fittings and meter couplings eliminated. Simple and easy to install, it is a beautiful example of ingenious, functional design.



CALIBRATED TESTING TANKS

Before Ford Calibrated Testing Tanks were put on the market about 35 years ago, such meters as were tested were checked against gravimetric scales, which were complicated and inconvenient. Thousands of Ford Tanks are in service, in sizes from one to 1000 gallons.



METER YOKES

The Ford Yoke dates back to 1911. Its outstanding success resulted in a wide variety of meter holding devices called yokes. But the Ford Yoke as now made offers advantages not obtainable in any other type of meter setting. Millions are in use.

METER VALVE

The Meter Valve is a close-coupled combination of an inverted key valve and a meter connection. It saves material, pipe joints and space in the meter setting. Ford Meter Valves bear the trademark name of Ringstyle Valves.

THE FORD METER BOX COMPANY, INC.

FOR BETTER WATER SERVICES

Wabash, Indiana

FORD

BAVIN GLASS BEAD DISPENSER

FOR STREET, HIGHWAY AND AIRPORT RUNWAY MARKING

*Easily and quickly attached to ANY striping machine*

G. D. BAVIN CO. 2500 WEST SIXTH STREET BUILDING LOS ANGELES 5, CALIFORNIA

more power

ANOTHER PORTABLE

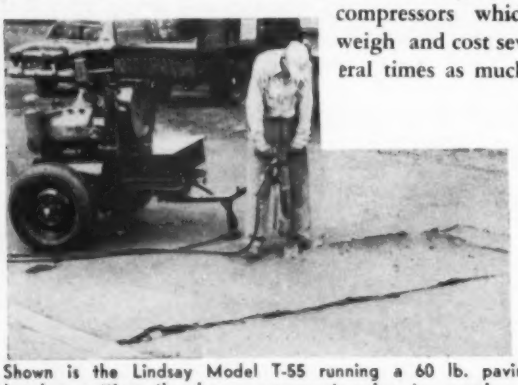
# LINDSAY AIR COMPRESSOR

BOOTH #63
A. W. W. A.

NOW—you can get an air compressor that will run a medium size paving breaker at full capacity yet is so portable it needs only one or two men (not a whole crew or truck) to get in position and operate. This heavy duty Lindsay Model T-55 is especially designed for rugged digging and drilling. Is priced to meet the budget of the small town as well as the large. This Lindsay compressor will do much of the work often assigned to compressors which weigh and cost several times as much.

**QUICK FACTS ABOUT THE LINDSAY MODEL T-55.**

- Most portable in its class
- Large storage box for tools
- Torsion spring mounting
- Direct fan cooling

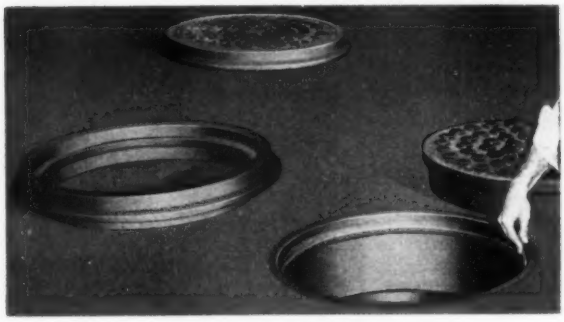


Shown is the Lindsay Model T-55 running a 60 lb. paving breaker cutting the heavy pavement prior to opening a service trench.

**P. K. LINDSAY COMPANY**
97C Tileston St. Everett 49, Mass.

## "Manhole Adapter"

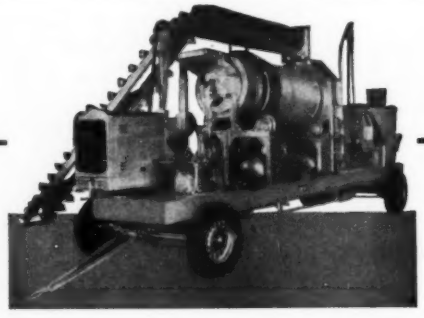
Complete story of MANHOLE ADAPTER shown below. At top—device installed, ready for application of resurfacing material. Cut was made from picture actually taken "on the job"



MANHOLE ADAPTER
Reg. U. S. Patent Office No. 2,431,082

Write for full information

**A. REED WILSON COMPANY**
1320 McGee Street Kansas City 6, Missouri



## Cities Can Save On Street Repairs With White Portable Plants

These 8-10 tons per hour Asphalt Plants economically repair almost any pavement. Asphalt, brick, concrete, macadam, can be resurfaced or patched. Alleys, sidewalks, driveways can be paved.

Produce for immediate hot laying, or for deferred cold patches. Match any bituminous surface.

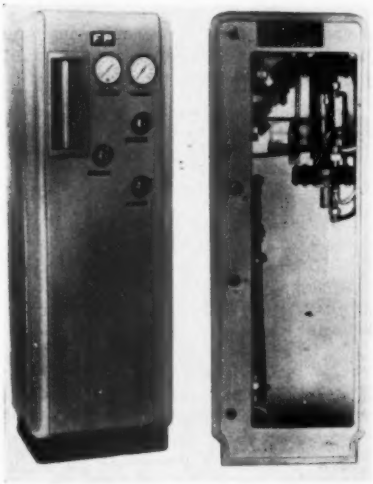
Mixes at plant, including labor, fuel, and overhead cost about $4 per ton, with $2 aggregate. Average 160 to 200 sq. yds., 1" thick per hour. Compare this with your present costs!

Also larger plants, 15 and 30 tons per hour.

*Write for catalog and name of nearest dealer.*

White Mfg. Co.
ELKHART 1 INDIANA

## New Chlorine Dispenser Adaptable for Remote Setting



**Constant chlorine flow is assured with this new dispenser manufactured by Fischer & Porter Co. Unit includes the flow meter and chlorine and water pressure gauges.**

A vacuum-type solution-feed chlorine dispenser, including new corrosion-resistant materials unaffected by either dry or wet chlorine gas is now being offered by Fischer & Porter Co., 10 Jacksonville Rd., Hatboro, Pa., with either manual or automatic proportioning control in capacity ranges up to 6,000 PPD maximum.

Large diaphragm areas in the regulators and minimum friction in the few moving parts assure constant chlorine flow rate in the manual-reset model, and accurate rationing in the automatic proportioning dispenser. Since chlorine flow rate is changed by a simple valve setting while the vacuum is held constant, the dispenser may be readily adapted for remote setting with an air-operated diaphragm motor valve in accordance with standard industrial control methods. There is no need for expensive and special devices.

Although in normal operation the chlorine remains completely dry until the regulated flow of gas enters the water stream at the injector, after which the chlorine-water solution immediately leaves the system, the new chlorine dispenser will be unaffected should water vapor enter the chlorine lines. Materials used to insure no internal corrosion include Uscolite, Teflon, Kel-F, Hastelloy "C," Monel, silver and tantalum.

Further information is yours by either writing the manufacturer directly, or taking advantage of the Post Card placed for your convenience on the colored page in this section. Circle No. 10.


STOP COSTLY WATER HAMMER NOW!

WILLIAMS-HAGER FLANGED Silent CHECK VALVES

Williams-Hager Flanged Silent Check Valves are the economical and dependable answer to troublesome and costly "water hammer" in all pump lines. These valves operate effectively in horizontal, vertical, upside down or angular positions—under any service or pressure condition.

WRITE FOR BULLETIN WH-851

This bulletin gives complete details on the cause, effect and control of damaging "Water Hammer." Use the coupon below for prompt delivery of your copy.

CHECK VALVES

THE WILLIAMS GAUGE CO., Inc.
3013 Pennsylvania Ave. Pittsburgh 33, Pa.

MAIL THIS COUPON Today!

THE WILLIAMS GAUGE COMPANY
3013 Pennsylvania Avenue
Pittsburgh 33, Pa.

Please send a copy of Bulletin WH-851 on "Water Hammer, Cause, Effect and Control in Piping Systems."

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Bowser water filtration systems for swimming pools are unsurpassed for their ability to produce "sparkling clear water."

They are compact and easy to operate . . . they occupy only about 1/5 the usual floor space of conventional filters and use only 1/10 the usual backwash water. Operating costs are lower, too!

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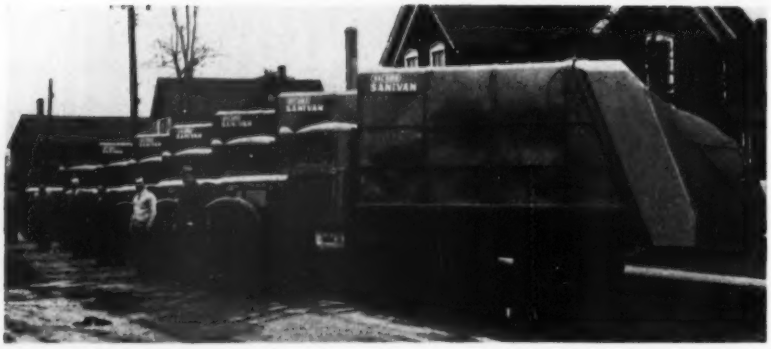
BOWSER, INC., 1342 CREIGHTON AVENUE, FORT WAYNE 2, IND.

Regional Offices: • Atlanta • Cleveland • Dallas • Fort Wayne • Kansas City • New York • San Francisco • Washington, D. C. • Canadian Plant and Sales, Hamilton, Ont.



## New Refuse Collectors Set for Rochester

Shown above are one-half of the 12 Sicard Sanivan garbage collectors for delivery to Rochester, N. Y. Sold by T. E. Potts Equipment Co., Inc., Buffalo, N. Y., and manufactured by Sicard Industries Inc., Watertown 1, N. Y., these units have a heavy load which can be compressed in the 14 cubic yard body because of double compression, first in the hopper and then in the body itself. Unloading is by ejection, and no dumping is required. For more information write the manufacturer, or Circle No. 33 on the Post Card located on the colored page in this section.

## Controlled Solution Feeder Regulates pH, Concentration

Processing can be improved through the automatic control of chemical feeders, is the claim advanced by The Foxboro Co., Foxboro, Mass., manufacturer of industrial instruments for process measurement and control.

To illustrate their point, company officials point to the Foxboro Pneumatic Transmitter and Foxboro Dynalog Controller, two new instruments designed for application to the Lapp Pulsafeeder Pump. Both the transmitter and the controller permit the automatic feeding of treating chemicals either to maintain uniform concentrations or to correct variations of pH in any continuous process.

Operated by a constant speed electric motor, the Pulsafeeder Pump is controlled through a pneumatic cylinder which varies the piston stroke length to change the feed rate. This cylnder is automatically positioned by the Pneumatic Transmitter or the Dynalog Controller, depending upon whether chemicals are to be proportioned to flow or added to control the pH of the fluid.

Since the transmission and control are pneumatic, the system of automatic feeding offers maintenance economy, accuracy and operating simplicity. Any number of indicators, recorders or controlled diaphragm feeders can be operated from one pneumatic signal, permitting unlimited combinations of information and control.

For information on either the Pneumatic Transmitter or the Dynalog Controller, write The Foxboro Co. for the new engineering data sheet, AED 000-10. Instead you may turn to the colored page in this section and use the Post Card. Circle No. 11.

**Foxboro Dynalog pH Controller.**


IT COSTS LESS PER YEAR

IT ELIMINATES FABRIC REPLACEMENT

IT NEVER NEEDS PAINTING

IT'S Copperweld Trade Mark

NON-RUSTING

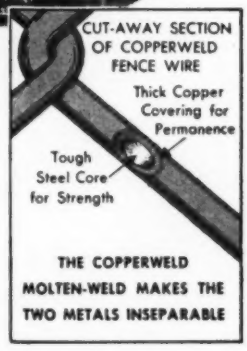
CHAIN LINK FENCE

Your first cost is your last cost when you install Copperweld*—the only protective chain link fence that protects itself. It eliminates fabric maintenance expense, never has to be wire brushed or painted, never needs to be replaced.

Made of time-tested Copperweld Wire, with a thick covering of copper Molten-Welded to a strong steel core, Copperweld Chain Link Fence can't rust or deteriorate. It is not affected by moisture or industrial atmospheres—remains strong, rigid and in perfect alignment for a lifetime of service. And it costs less per year because it lasts longer, requires no upkeep.

If you want permanent fence protection without the bother and expense of fence painting, it will pay you to insist on Copperweld Chain Link Fence. Remember—there's no other fence like it. Write us today for complete information.

*Trade Mark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Tough Steel Core for Strength
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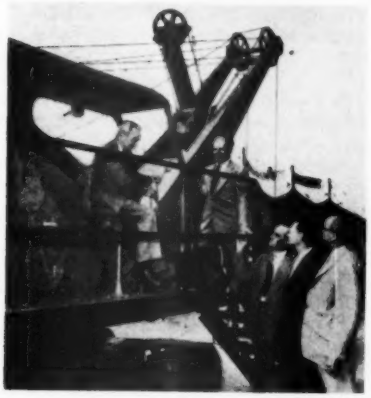
1000 Monongahela Avenue, Glassport, Pa.

SALES OFFICES IN PRINCIPAL CITIES

Copperweld Molten-Welded Products are serving many industries—and have been doing it dependably and economically for over 37 years

## Heavy Excavator Production Scheduled For Southern Plant



**J. R. Steelman, president of Koehring Southern and its parent organizations, handles the controls of this half-yard diesel shovel, one of the pieces manufactured at the Chattanooga plant. Those looking on are E. A. Brugger, vice-president of Koehring Companies (on the steps), and, left to right on the ground, N. J. Decker, local plant manager; W. S. Cambron, secretary and treasurer of the local plant, and Peter P. Graser, secretary-treasurer of Koehring companies.**

Koehring Southern Co., a subsidiary of Koehring Co., 3026 W. Concordia Ave., Milwaukee 16, Wis., manufacturers of Dumpsters, Cruiser Cranes, Twinbatch pavers, Mud Jacks, and other construction equipment, will produce some $2,000,000 worth of heavy excavators a year at its big plant on Manufacturers Road, Chatatnooga, Tenn., reports E. A. Brugger, vice-president of the parent company. Mr. Brugger spoke on behalf of the Koehring Co. at a dinner in North Chattanooga's Hotel Patten attended by a number of local, public, civic and industrial leaders.

The North Chattanooga plant, which recently held a six-day open house to exhibit the first power shovel manufactured there, as well as earth-moving equipment produced at other Koehring plants, will produce two other models in the future. Mr. Brugger said that this larger production schedule would necessitate the addition of 300 to 400 more employees in the near future, bringing the Chattanooga plant's employment over 500.

Further information concerning Koehring earth-moving equipment may be obtained by writing directly to the parent company located in Milwaukee, or take advantage of the Post Card placed for your convenience on the colored page in this section. Circle No. 57.


**A.W.W.A. WELCOME!**

**Annual Convention**
**May 10-15**
**Grand Rapids, Michigan**

**Traverse City Iron Works**
**Traverse City, Michigan**

*Manufacturers*

**Fire Hydrants and Valves**

A.W.W.A. Specifications for Municipal and Industrial Work
Factory Mutual and Underwriters Approved for Automatic Sprinkler Installations.

- Mechanical Joint Fittings
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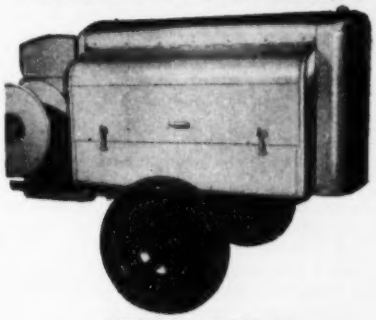
**GET YOUR COMPRESSED AIR FOR LESS with**

**smith COMPRESSORS**



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**POWERED BY CHRYSLER INDUSTRIAL ENGINE**

You *can* reduce costs today, by using a Smith 105-P for the *majority* of your compressor work! Delivers 105 cu. ft. per minute — combines heavy duty with light weight; easily portable. Chrysler Ind. 15 Engine has 6 cyl., 4" bore, 5" stroke, 377 cu. in., 3" crankshaft, 7 main bearings, sodium cooled valves and Stellite valve seats for heavy duty, long life. Compressor valves — stainless steel disc type with Manganese Bronze seats. Improved type pilot valve and simplified control.

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**GORDON SMITH & COMPANY**
425 College Street
Bowling Green, Ky.
Send complete literature and prices on the low-cost 105-P Smith Compressor.

NAME_____
ADDRESS_____
CITY_____ STATE_____
☐ Also send name of nearest dealer.



**. . . for SAFE, SURE gas utilization**

**SEWAGE SLUDGE GAS SAFETY EQUIPMENT**

Completely eliminate fire and explosion hazards! P.F.T. gas safety equipment includes: waste gas burners, flame traps, pressure relief units, gas pressure regulators, pressure gauges, condensate and sediment accumulators. Write for Bulletin 221 for complete details!

**P.F.T. PACIFIC FLUSH TANK CO.**
*Waste Treatment Equipment Exclusively Since 1893*
4241 RAVENSWOOD AVE. CHICAGO 13, ILLINOIS

# Landfill garbage disposal speeded by Tournatractor

Dirt from next disposal trench is dozed over compacted refuse. Tournatractor's blade carries 2½ cu. yds. of material. Unit shown belongs to Peoria Public Works dept.

Many American cities have solved their refuse disposal problems with the sanitary landfill. This system eliminates odors, flies, and rat breeding opportunities and requires less equipment with lower operating costs than other methods of garbage disposal. On a long-term basis, it fills worthless land to convert it into valuable real estate.

With the landfill method LeTourneau rubber-tired equipment has a big advantage over other machines.

With Tournatractor, for instance, you can use dozer blade or towed scraper to dig a trench. No shovel or trucks needed. No slow-moving crawlers. One man and one machine can do the complete trenching job.

For covering, Tournatractor also works alone to doze truck-hauled garbage into the trench, and to put on the desired layer of stockpiled dirt. If sufficient cover earth is not available nearby, Tournatractor's 19 mph speeds make practical long-distance dozing or hauling of cover. Because of this speed, job figures show that Tournatractor will do the landfill job 2 to 3 times as fast as crawlers of comparable size.

Tournatractor spreads truck-dumped garbage . . . solidly compacts refuse and cover dirt during normal travel over the trench.

Extra time may be used to handle scattered maintenance-type jobs or to move to another dump. Tournatractor drives anywhere at a moment's notice . . . does not damage concrete or blacktop. With Tournatractor, you drive safely through traffic . . . can get to a job 2 miles away in 5 to 10 minutes.

Ask your LeTourneau Distributor for all the facts on this or other LeTourneau earthmoving machines. He'll be glad to show you how these machines can save you money on a sanitary landfill.

Tournatractor—Trademark T-339-G-zz

LETOURNEAU LET EQUIPMENT

**R. G. LeTOURNEAU, Inc.**

*Peoria, Illinois*

**MORE WORK PER HOUR WITH RUBBER-TIRED POWER**


## Dual-Fuel Engine Drops Power Costs 27%

Foresight in selecting a dual-fuel engine in anticipation of the advent of natural gas is paying handsome dividends to Kennett, Mo. (population 12,000). The city's municipal electric plant now has among its six engines a 2·800-hp Model 31AD18 Fairbanks-Morse diesel, put into service in the summer of 1950. With no gas then available, this functioned as an oil-burning diesel for two full years. When natural gas came in 1952, the engine was switched immediately to dual-fuel operation. In the first three months, the big dual-fuel unit cut its fuel cost 37%, and reduced overall plant cost at the switchboard a big 27%.

Designed by Burns and McDonnell Engineering Co., Kansas City, Mo., in 1940, the plant originally had a total of 2425 hp, supplied by three Fairbanks-Morse diesels. Two were Model 33F12, six-cylinder engines with a bore and stroke of 12 in. and 15 in. respectively. Developing 600 hp at 400 rpm, these units are rated at 400 kw. The third generator, turning out 850 kw, was powered by an F-M 7-cylinder engine with a bore and stroke of 16 x 20 in. which develops 1,225 hp at 300 rpm. In anticipation of heavy loads during the war years, 1942 saw the installation of a 600-hp McIntosh and Seymour engine driving a 400-kw generator at 225 rpm. This raised the installed horsepower to 3,025 and the generating capacity to 2,050 kw.

The immediate postwar period found loads even heavier than in the war years and this condition dictated the installation of No. 5 unit, an F-M, 13 x 20-in. engine rated at 2,000 hp at 300 rpm and driving a 1,400-kw generator. Although this increased the plant's capacity to some 3,450 kw, the familiar story of increasing loads led to the installation, in 1950, of a 2·800-hp dual-fuel engine, the plant's largest prime mover. This is a 2-cycle, 8-cylinder unit with a bore of 18 in. and a stroke of 27 in., developing its rated horsepower at 277 rpm.

Fuel gas became available late in August of 1952. Carrying 1,000 BTU per cubic foot, the gas is transmitted at 50-lb. pressure and regulated in the plant to 28-35 lb. The price is $0.37 per thousand cubic ft., a relatively high figure but still cheaper source of heat energy than is fuel oil.

The success of dual-fuel operation was immediately apparent. In August of 1952, the last month on fuel oil, the engine produced 330,000 kw-hr for a total operating cost, including wages and salaries of $3,590.91, or a per kw cost of 10.2 mills. The conversion to dual-fuel reduced this figure by no less than 27%. Specifically, in November 1952, the engine, now carrying a greater portion of the total load, produced 1,322,600 kw-hr and did this for a total cost of $7,154.73. This figures out to 7½ mills per kw, including all operat-

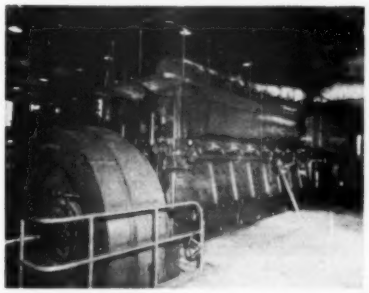
(*Continued on page* 243)

## Dual-Fuel Engine Drops Power Costs 27%

(*Continued from page 242*)

ing expenses, and reduced over-all plant generation costs from 11 mills in August to 8.4 mills in November.

For full details on this dual-fuel engine, write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago Ill., or you may take advantage of the Post Card on the colored page in this section. Circle No. 9.



**Kennett's 2800-hp. Fairbanks-Morse dual-fuel engine has played a major role in reducing the overall generating costs by 27%.**

## How to Select Radio Equipment

There's no more important information that can be given in any technical field than how to select the necessary equipment. The second page of a new bulletin on Radiotelephone Equipment tells how to select it. First find out the frequencies available to your city's fire, police and public works services, and if you have a choice, select the ranges with the least interference.

Up to 15 to 40 mile coverage, use the 152-174 MC band. Interference with distant stations on the same frequency is not usual. For 30 to 60 miles, use 25-50 MC. Still greater distances on both these bands are possible with relay or repeater stations or remote control of base stations located at high elevation.

The rest of the booklet illustrates and describes the various transmitters and receivers which do the handling of messages. The 8-page booklet is obtainable from Kaar Engineering Corp., Palo Alto, Calif. Write directly, or use the Post Card on the colored page in this section. Circle No. 47.

## Automatic Door Opener

A fully automatic garage door opener that is motivated by weatherproof magnetic discs, buried in the driveway, is recommended by the manufacturer as especially practical for municipal garages, fire and police stations, and airports. Doors open as vehicle approaches discs. For illustrated literature write the Automatic Electronic Engineering Co., 2207 E. North Ave., Milwaukee, Wis., or use the Post Card in this section. Circle No. 59.


# Worth more than their weight in gold

How important to the continued operation of your business are your mortgages, deeds, blue prints, books, maps, drawings, manuscripts? Worth more than their weight in gold to you, aren't they?

Suppose they disappeared mysteriously, were stolen, mutilated, destroyed by fire. Ever stop to realize what their loss would mean? — how much it would cost to replace them?

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# See it Saw

Don't buy any chain saw until you see a DISSTON demonstration

**New LOW PRICES!**

ON ALL DO-101 MODELS starting at $299.75

**SEE the dual-purpose DISSTON DO-101**

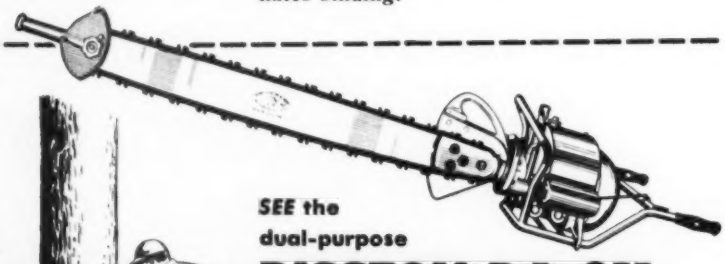
***with Mercury Gasoline Engine***

*Most dependable, lightweight 1-man or 2-man saw*

***SEE this amazing saw in action*** . . . you'll find it hard to believe! A smooth-running powerhouse that cuts tough logs in seconds. Compact, precision-built Mercury Gasoline Engine keeps it running all day every day.

***SEE the many cutting attachments,*** including: Spee-D-Tach tailstock for quick conversion to 2-man use. A choice of seven rail lengths from 18" to 40".

***SEE the new 16" "Free-End" bow saw*** with DF chain. Perfect for fast bucking and limbing. Taper ground rail eliminates binding.



**SEE the dual-purpose DISSTON DA-211**

***with 9 h.p. Mercury Engine***

***SEE this rugged, reliable worksaver*** cut and you'll agree there's no job too tough for it! So expertly designed and built it runs at top speed without vibration or chatter.

***SEE why it's the undisputed leader*** for low cost two man felling, bucking of heavier timber. Meets *every* wood-cutting need.

***SEE the cutting attachments available*** which extend the saw's usefulness, including narrow profile guide rails up to seven feet long and 25" Bow Saw attachment.

***SEE these great saws in action***

***Ask your dealer for a demonstration today!***

**FREE** Illustrated 32-page booklet "How to Make Money and Cut Costs with Chain Saws." Write today.

**HENRY DISSTON & SONS, INC.** 65E Tacony, Philadelphia 35, Pa., U.S.A.

On the West Coast: 1555 Fourth Ave., Seattle 14, Wash. • 635 N.W. 16th Ave., Portland, Ore.
In Canada: 2-20 Fraser Ave., Toronto 3, Ont.


## Homeowners Help In Garbage Disposal

Municipalities can expect help from the homeowner in the disposal of garbage in a sanitary manner by the use of this continuous-feed, self-cleaning type food-waste disposer. The new disposer, recently introduced by The Schaible Co., 1086 Summer St., Cincinnati 4, Ohio, may be quickly and easily installed in old homes or new without expensive alterations.

Designed with compactness in mind, the Schaible Disposer is only 10¾-in. high, with a diameter of 7½-in. The distance from the sink inlet to the disposer outlet is 5-in., permitting installation to most drain lines regardless of the age of the dwelling. Weight of the unit is 24½ pounds, and it will operate on 110-115 current; 50-60 cycles. Powered by a ⅓-hp Capacitor, water-cooled motor, the disposer is equipped with a built-in motor overload protector.

An important feature of the disposer are the 3 rubber feet which permit the unit to be placed on the sink or table top without marring the surface.

Particle discharge size is positively controlled by reduction grating through horizontal milling action, filing, impingement cutting and clipping.

Further information may be obtained from the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 64.


**MANUFACTURER'S REPRESENTATIVES WANTED**

to sell to counties, cities and towns—

a complete line of Traffic Signs utilizing Reflexite, the reflecting material now used on super highways such as Merritt Parkway, New Jersey Turnpike, etc. Also barricades, delineators, street name signs and traffic paint.

For complete information, write to

**Reflexite Corp.**

63 Wall Street, New York 5, N. Y.

## Police Radio Simplifies Law Enforcement

What does police radio mean to law enforcement agencies?

Primarily, it is the difference between escape and capture.

Once a crime has been committed, the word goes out along the police radio; searches are organized; road blocks appear, and the criminals are brought to justice with dispatch.

An example of a highly efficient state police system is the crack North Carolina Highway Patrol. The system consists of 13 radio stations, permitting quick transmission of messages throughout the state. Each patrol car is equipped with a two-way radio allowing car-to-car and car-to-station communication. One emergency unit, with transmitting and receiving power greater than the patrol cars, is maintained for use in case of disaster.

Civil defense is also served by the North Carolina police radio. A recent test warning flashed by the police radio throughout North Carolina completely covered the entire state in six minutes.

In back of all police radio systems there must be a system of reliable electric power. Atop Mount Mitchell, tallest in the Blue Ridge range, North Carolina police have established their transmitter station. Two Kohler electric plants supply 3,500 watts of electric power each. The twin Kohler plants operate around the clock, and except for periodic check-ups, they run unattended.

For information about Kohler electric plants, write Kohler Co., Kohler, Wis., or you may take advantage of the Post Card on the colored page in this section. Circle No. 19.

## Continous Microfilm Enlargement

Whether a city's records have been destroyed as part of a records-retention program or by accident, Remington Rand Continuous Microfilm Enlargement Service can rebuild all or any part of a file. Enlargements may be used for litigation or special government reports. The reproduction of bank signature cards, duplicate files and copies of deeds, mortgages and other instruments recorded in county clerks' offices are but a few of the many uses for continuous microfilm enlargement service. It is fully described in free folder EDS-3 Rev., available from Remington Rand Inc., 315 Fourth Ave., New York 10, N. Y. The folder may also be obtained by using the Post Card on the colored page in this section. Circle No. 24.


ELIMINATE HIGH PAINTING COSTS

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DECALS

for TRUCK LABELS or NUMBERS
AUTO & TRUCK
WINDSHIELD IDENTIFICATION
INVENTORY OF FURNITURE, MACHINES, etc.
Special Purposes

EASY TO APPLY
DURABLE • MORE ECONOMICAL
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*Send sample or specifications for quotation*

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DECALS FOR CIVILIAN DEFENSE
for Helmets • Badges • Trucks • Equipment • Windows • Buildings
PLUS OFFICIAL CD ARMBANDS
PYROXOLIN COATED CLOTH
*Approved for use by the Office of Civilian Defense*

NORSID Mfg. Co., Inc.
21 Atherton Street, Dept. A
Yonkers 1, N. Y.

**A Model and Size for Every Emergency Need**

Shown above, Model 4500, 2500 Watts, A.C. or D.C. on "Speedy-Shift" portable base—other models from 500 Watts to 10 KW capacity. Prices start at $142.50 (less engine).

Electric power is a most essential ally in fighting any emergency—continuous lights and power are required necessities for civil defense programs. Winco Economy-Engineered Generators on portable base or truck can be rushed to any critical point—strategically placed emergency installations provide sure-fire protection at all times. 4-Cycle engine dependability at low cost makes WINCO GENERATORS an outstanding value!

WRITE FOR DETAILED LITERATURE

WINCHARGER CORPORATION 2147 E. 7th St., Sioux City, Iowa

*A Subsidiary of Zenith Radio Corporation*

# F. O. DeCARIE INCINERATOR

**Composite Daily Record**
**City of Santa Monica, Calif.**

| | Furnaces No. 1 | No. 2 | No. 3 | No. 4 |
|---|---|---|---|---|
| Start | 10:15 | 10:30 | 10:45 | 11:00 |
| Last Charge | 4:05 | 4:10 | 4:10 | 4:15 |
| End Test | 4:20 | 4:25 | 4:25 | 4:30 |
| Total Test Time | 6:05 | 5:55 | 5:40 | 5:30 |

Total Tonnage Burned Class A & B 78.57 Tons
Garbage 47.14 Tons
125.71 Tons

Total Furnace Ash (Wet) ... 30.6445 Tons
Total Fly Ash (Wet) ... 4.995 Tons
Total Electrical Energy Used ... 1,020 KWH
Total Water Used ... 9,470 C. F.
Total Labor Used ... 3 Men @ 8 Hrs,

**Cost Per Ton**

| | |
|---|---|
| Water: 9,470 C. F. @ 10c/100 C. F. | $ 9.47 |
| Electricity: 1,020KWH @ 1½c/KWH | 15.30 |
| Labor: 24 Hrs. @ $1.00/Hr. | 24.00 |
| | $48.77 |

125.71 Tons @ 48.77—$.388 per ton
Average cost per ton to date—$.437

*Write today for full details to Tom Greelis*

**GREELIS SALES DIV.**
**F. O. DeCARIE**
**760 South Parkview**
**Los Angeles 5, Calif.**



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HEADQUARTERS
FOR
**FIRE EQUIPMENT**
**AND**
**POLICE EQUIPMENT**

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WRITE FOR
NEW CATALOGS

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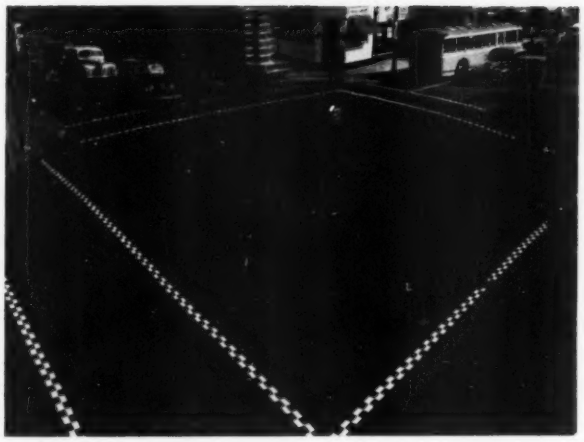
**W. S. DARLEY & CO.**
ESTABLISHED 1908
CHICAGO 12, ILLINOIS

**These checkerboard lines indicate the higher visibility given by broken lines, an example of the adaptability of Armor Flex Markers to practically every need.**

## Plastic Pavement Markers Ease Traffic Problems

Traffic trouble spots demand clear, effective pavement marking, and according to this manufacturer, they get it with Armor Flex Traffic Markers.

New Armor Flex markers are plastic blocks that are installed on the pavement to form lines and messages. Made of a specially developed thermo-plastic material, they are reported able to stand up indefinitely under constant pounding by traffic, while the hot mastic with which they are installed makes them very flexible to conform to the exact shape of the pavement.

After cooling, these very hard, abrasive-resistant markers are said to fit the pavement closely. Passing traffic helps to inlay them in the surface, as well as keeping them high polished. Because Armor Flex markers are non-absorbent and not subject to discoloration, you get a clear, sharp line of long life that requires little maintenance.

Armor Flex Traffic Markers are available in two sizes: 3 x 6 x ⅛ and 6 x 6 x ⅛; and in two colors: white and yellow. Under most conditions, asphalt seal coats may be applied to the paving and the markers will shortly re-appear with full visibility.

Those desiring further information as to the effectiveness and methods of installation of these thermoplastic blocks should write to Armor Flex Traffic Products, 6969 Amherst Ave., St. Louis 5, Mo., or use the Post Card on the colored page in this section. Circle No. 35.


**GET THOSE WEED ROOTS!**
GO TO THE ROOT
OF YOUR WEED PROBLEM
WITH THESE DOLGE PRODUCTS

To keep weeds off drives, walks, parking lots, tennis courts, sand traps you've got to finish the roots.

**DOLGE SS WEED-KILLER** does that—and more. It kills the foliage, of course. It works down deep. It tends to sterilize the soil so that wind-blown seeds connot sprout in it. Diluted as directed, it can kill the toughest weeds. Spray or sprinkle where you want no growth whatsoever.

**E.W.T.** is the Dolge 2, 4-D **Selective** Weed-Killer. It finishes dandelions, plantain and other broad-leaved weeds in turf—does not harm good lawn grasses. It translocates; is absorbed and travels through the sap to the roots.

See your Dolge Service Man—he will call soon.

Write for the Dolge booklet on chemical weed control.

FOR
**FREE SANITARY SURVEY**
OF YOUR PREMISES
SEE YOUR DOLGE SERVICE MAN

dependable
**DOLGE**
WESTPORT, CONNECTICUT


## Simplify Overhead Work

The Maxwell Corp., Milford, Conn., recently introduced the Hydro-Sky Worker, an efficient, flexible and easy to operate piece of equipment, capable of doing hundreds of overhead jobs at minimum cost.

A hydraulically operated articulated boom to which is attached either one or two crow's nests, the Sky Worker has controls that enable workmen to reach any point in space, within the upper half of a sphere whose radius is 26 ft. from the top of its mooring. It reaches a full working height of 40 ft. when mounted on any standard commercial truck chassis of one and one-half tons or more, or on a dolly or trailer.

Powered by a conventional power take-off from the truck engine, the Sky Worker is assured smoothness and flexibility of movement in any direction. It rotates a full 360 degrees and can easily carry a working load of 500 pounds. Two electrically operated outriggers may be mounted conveniently on the truck instrument panel.

Further details may be obtained by writing the company, or use the Post Card in this section. Circle No. 31.

National's new machine works directly from original records.

## Payroll Machine Prints Five Records in One Operation

National's new "142" Payroll and Distribution machine has a tax computer which automatically indicates withholding tax, social security, local taxes or other variable deductions based on a percentage of gross earnings. As many as 28 totals for payroll writing and 50 totals for labor distribution are available.

Pay check or pay envelope, pay statement, employee's earnings' record, payroll journal and check register, all are created in a single operation. Gross and net pay are automatically computed and up-to-date balances for earnings, withholding tax and FIC, are figured and printed by machine on each employee's earnings' record. The depression of a single key causes instant simultaneous printing on all five records, all of which appear in original print; no carbon is used.

Daily payroll accrual and the distribution of labor are accomplished in one operation, directly from clock cards or other original records.

Further information is available from The National Cash Register Co., Dayton 9, Ohio. Write directly, or take advantage of the Post Card located on the colored page in this section. Circle No. 22.

## New Steel Coating Comes in 10 Colors

Something new in the way of a stainless steel coating is Steelast, a unique line of products recently developed by Steelcote Mfg. Co., St. Louis 3, Mo. While the new products, like those of stainless steel coating, use a vinyl plastic vehicle, it is possible for Steelast to be manufactured in a variety of colors including black, white, gray, ivory, green, red orange, and yellow.

Steelcote officials say that the new finish produces the toughest type film ever tested in their laboratories. It is impervious to moisture resistant to most chemicals, and odorless and non-toxic when dry.

Offering many advantages over ordinary coating, Steelast may be used to protect and finish metal surfaces on original equipment, and to maintain machinery, pipes, tanks, duct work and metal building materials, indoors and out. The new finish may be sprayed, brushed or dipped, and will withstand constant wet heat up to 180° F. and constant dry heat up to 300° F. Steelast dries in 30 to 60 minutes after spraying, requiring 2 to 3 hours for recoating. However, it may be force-dried in some 10 minutes.

Steelcote will send further information on request. Write, or take advantage of the Post Card on the colored page in this section. Circle No. 28.

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*Saves Space*
*Assures Protection*

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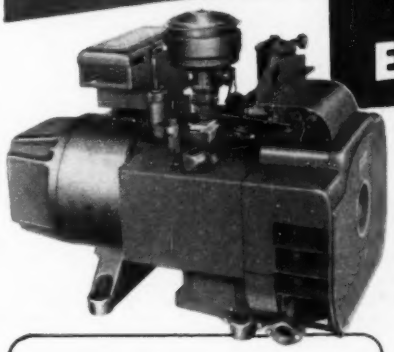
Lansing, Michigan

**The STANDOUT ELECTRIC PLANT**

**for STANDBY ELECTRIC POWER**



the New **ONAN "CW"**

5000, AND 10,000 WATTS

★ **COMPACT**—Requires less than one cubic yard of space. 10KW model needs only half the space of other 10KW units.

★ **BUILT FOR HEAVY DUTY**—Twin-cylinder, horizontally-opposed, 4-cycle, air-cooled engines operate at moderate speed.

★ **UNI-DUCT COOLING**—Air cools both engine and generator and is expelled through one small vent which also discharges engine exhaust.

**Here's a powerhouse** of emergency electricity with features and performance that make it a standout!

The CW is compact and lightweight. It's easier to install and requires a minimum of servicing. Air-cooling avoids trouble from leaking or freezing.

New vacuum cooling and the smooth-running, 4-cycle, twin-cylinder engine give the CW amazing quietness. All moving or heated parts are safely enclosed.

The Onan CW, with all its exclusive advantages, *costs less than any other complete electric plant of its capacity.*

**DeLuxe equipment. Nothing extra to buy.**

*WRITE FOR SPECIFICATIONS*

Onan ELECTRIC PLANTS

**D. W. ONAN & SONS INC.**

8357 University Avenue S.E. • Minneapolis 14, Minnesota

## *For better lighting in Baltimore...*

# AMPLEX STREET LIGHTING LAMPS

Amplex Street Lighting Lamps bring improved lighting on West Franklin St., Baltimore. Installation made by Consolidated Gas Electric Light and Power Company of Baltimore.

IT'S THE SAME with cities and utilities the country over . . . in fast-growing numbers they're turning to Amplex Street Lighting Lamps These lamps are designed and built for the kind of service that really pays off. They survive the constant jolts and vibration of heaviest traffic . . . maintain their high light output throughout their extra-long-burning lives.

The Amplex line gives you a street lighting lamp of the right type and wattage for every requirement. And for absolute tops in rugged dependability your one best bet is Amplex *Weatherproof Bulbs.* They're made of moisture-resistant "hard glass" that stands up through toughest climatic conditions and cuts service costs to rock bottom.

Get full information about Amplex Street Lighting Lamps and their efficiency and economy on the job. Write Amplex Corporation, Dept. K-5 111 Water St., Brooklyn 1, New York.

AMPLEX

Sealed-Beam Reflector Lamps, Colorbeam Lamps, Spotlites and Floodlites, Industrial Infra-Red Heat Lamps, Vibration and Rough Service Lamps, Street Lighting Lamps, Traffic Signal Lamps, Incandescent Lamps, Fluorescent Tubes, Display Accessories.

**Radiographic technician checks the negative of a weld. The entire inspection from the beginning of exposure to the examination of the developed negative, may be accomplished in 30 minutes.**

## Insure Dependable Welds By Radiographic Inspection

Water-works engineers and officials planning to build transmission mains using welded-steel pipe can be sure that the welds are good by drawing on Radiographic inspection, a procedure developed in the gas industry.

Basically, the radiographic process requires three elements: a source of radiation, a sensitized film which will respond to the rays, and the object being tested or inspected which is permeable to the radiations. The sensitized film reacts to the radiations just as a photographic film reacts to visible light, producing an image of the object on the film. In a weld, the difference in density between the weld metal and the surrounding solid metal can easily be distinguished. Such defects as gas pockets or slag inclusions are less dense than the remainder of the weld and appear as dark areas on the developed film. Any defect within the weld itself may be easily detected by an experienced radiographic technician.

The advent of Cobalt-60 (one capsule is equivalent to 2.5 grams of radium), has eliminated many of the problems in field radiography. Not only is Cobalt-60 more efficient than radium, cutting the exposure time one-half to one-third, but the extreme portability of the new technique (the radiographer is not encumbered with an electric power cable or other accessories), and the simplicity of equipment needed, make Cobalt-60 more practical than the X-ray technique. Service charges for Cobalt-60 radiographic crews are usually well under half those for an X-ray crew for field work.

Radiographic inspection will save your city money. The detection of one bad weld before pipe is laid, pays for the total cost of inspection. Complete details are obtainable from Sam Tour & Co., Inc., Industrial Consultants, New York, N. Y., or Circle No. 63 on the Post Card located in this section.

## Multi-Purpose Equipment For Your Tractor

Speaking before some 250 members of the Midwest Institute of Park Executives at their March meeting at Chicago, Ill., Elmer A. Braker pointed out the many time and money-saving attachments now available for the International Harvester Farmall Cub and Super A wheel tractors.

Mr. Baker, who is general supervisor of the industrial power sales engineering section of the International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., reported that approved mowing attachments to the Cub or Model A included the IH Model AI-23 highway mower, Lawnshear gang lawn mower, Mott-hammer knive mower, and the Anderson Hydraulic mower.

Included in the material handling attachment list were the IH 2-wheel trailer wagon, American Con-Vay-It Belt conveyor, Pittsburgh carry-lift, Gulfport Gaylott rear scoop, Stockland Hydro-Scoop and the Tulsa 7,000 pound pull rear winch.

Maintenance and improvement attachments named included the Wagner bucket loader, IH leveling blade, Prewitt Grosshart post hole digger, Prewitt concrete mixer, Badger Hopto digger-crane-shovel, Sherman tractor mounted backhoe, and the Hudson tractor mounted sprayer.

For cleanup work, Mr. Braker mentioned the Meili-Blumberg tractor-mounted sweeper, Little Giant trailing sweeper, McClesky dump rake, Barnes water pump, Mott circular saw and the Van Ruden hydraulic chain saw. He also pointed out that the Wausau V-type snow plow, Arps V-type, straight or angle plow, the IH dozer blade with snow extension plate and the Campbell detachable all-weather cab were approved attachments for winter work.

For information concerning International's Farmall Cub and Super-A wheel tractors, or any of their approved attachments, write the International Harvester Co., or take advantage of the Post Card on the colored page in this section. Circle No. 60.

**Easily mounted on a Farmall Super A tractor is the snow blade extension to a grader blade. Some 60-in long and 16½-in. high, the blade and the Super A can handle all but the biggest snow problems.**


# TAX EQUALIZATION APPRAISALS

## THE J. M. CLEMINSHAW CO.

*Appraisers*

Nationally Recognized for
Municipal and County Revaluation
Since 1923

An Authoritative Professional Service
Universally Accepted by Assessing Officers
and the Taxpaying Public

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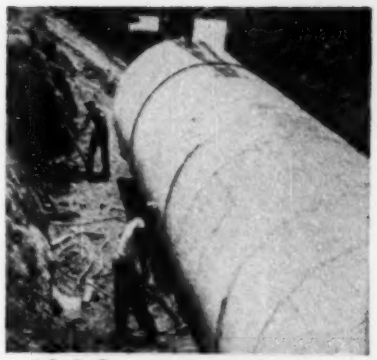
| Plainville, Conn. | 11 Williams St. | Sherwood 7-0676 |
| Greensboro, N. C. | 216 Commerce Place | Tel. 3-0112 |
| Des Moines, Iowa | Savings & Loan Bldg. | Tel. 3-5154 |
| Milwaukee, Wisc. | 2014 Sunset Court | Tel. Spring 4-8934 |





**If it's concrete . . .**

# UNIVERSAL

**world's largest manufacturer of concrete sewer and culvert pipe**

**can make it**

**26 plants for convenient, economical service.**
**30 years' experience in pipe, cribbing, precast manholes, riverweights, flat base pipe. Name it, we make it!**

**UNIVERSAL**
**CONCRETE PIPE CO.**
297 South High Street
Columbus, Ohio
*Publishers of Famous "Pipe Dreams"*

**This recently completed warehouse, office and service building will furnish faster service to Rockwell's Southern customers.**

## Rockwell Opens New Building in Atlanta, Ga.

A new office, warehouse and service building was opened recently by Rockwell Manufacturing Co. at 1495 Northside Drive N.W., Atlanta, Ga. These added facilities will enable the company to furnish faster and more convenient service to their Southern customers.

Complete stocks of standard Rockwell gas, water and oil burners, gas regulators, Nordstrom valves and repair parts will be carried in Rockwell's new warehouse, while immediate repair work will be provided by a special maintenance department.

J. W. Northcutt, Southern regional sales manager, and R. A. Johnson, newly appointed district sales manager, will make their headquarters at this new location. Together they will direct sales activities for the entire Southeastern district.

Rockwell's main offices are located at 400 N. Lexington Ave., Pittsburgh, Pa. For complete product information, write the manufacturer, or use the Post Card on the colored page in this section. Circle No. 67.

*Another*
**FIRST**
**FOR**
**SMITH-BLAIR...**

**NOW!**
**SMITH-BLAIR**
***Ductile Iron***
**TAPER SEAL**
**SERVICE CLAMPS!**

**For the first time, the amazing new material, ductile iron, is available in the complete line of Smith-Blair "Taper Seal" Service Clamps!**

Ductile iron service clamps offer the important advantages of bronze — at less cost. They are stronger, more ductile — and have a corrosion resistance that is superior to malleable or cast iron.

Combined with the many advantages of the exclusive "Taper Seal" design — which makes possible a quick, easy installation with a more positive water seal — the Smith-Blair Ductile Iron Service Clamps set a new standard for the industry!

*Another*
**FORWARD STEP For the WATERWORKS INDUSTRY**

***• Write today for complete information:***

SMITH BLAIR INC.

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**539 RAILROAD AVE., SOUTH SAN FRANCISCO**
**BRANCH PLANTS: DOWNEY, CALIFORNIA**
**GREENSBURG, PENNSYLVANIA**
**DISTRIBUTORS IN PRINCIPAL CITIES**


## New Portable Electric Power Plant

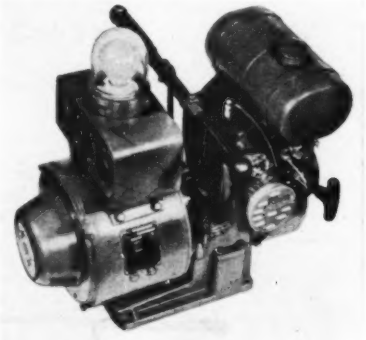
A light-weight gasoline-driven generator, providing an independent source of electricity beyond the limits of power lines, has just been introduced by Porter-Cable Machine Co., 18 Exchange St., Syracuse, N. Y. Available in two models, the generator serves as a power supply for the company's 30 different portable electric tools, many of which are used in locations where current is not readily available.

The first generator, desigated Model 119, is a 1,500-watt direct-current unit supplying 115 volts at 13 amps. Weighing some 75 pounds, this unit has a 3-hp single-cylinder engine and four electric outlets. Its DC current is suitable for all Porter-Cable tools, as well as any machines having universal motors.

Similar to Model 119, is the Porter-Cable Model 118 Generator, which weighs 135 pounds and provides alternating current.

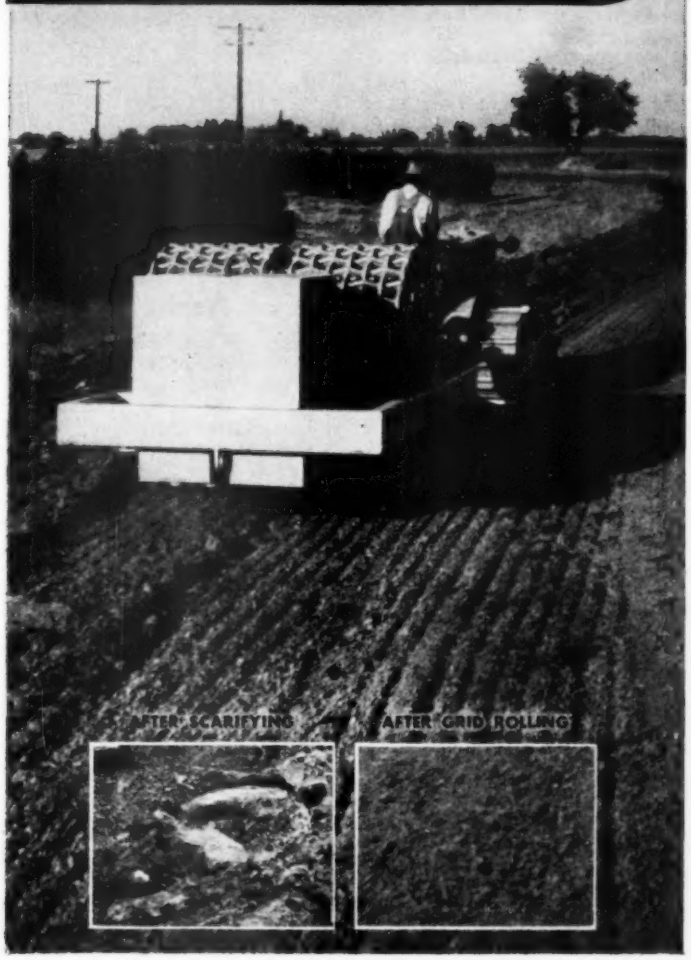
Both Model 118 and 119 may also be used as mobile power sources for flood lighting by public utility crews, or as stand-by emergency power plants where constant current is a vital necessity.

Write Porter-Cable for complete information, or turn to the colored page in this section and take advantage of our Post Card. Circle No. 62.



**This Porter-Cable Generator is a ready source of inexpensive power.**

# Repair or Rebuild
## roads and streets the modern way ...the GRID ROLLER way
## for faster salvaging of black-top at less cost!




No other single piece of road building equipment can match the Hyster Grid Roller in dollars returned per dollar invested! Progressive road builders and officials of counties, townships and municipalities throughout the country are adopting the Grid Roller method because it results in a *better* job, yet makes possible *substantial* savings. For limited or fixed budgets this means *more miles of road can be repaired or rebuilt.*

Key to savings is the fact that the Grid Roller performs three functions: (1) salvages the old surface material, (2) compacts the base, (3) rolls the new surface. On the job illustrated here, for example, involving only 1.6 miles of rebuilt road, savings approximately *matched the cost of the Grid Roller!*

A new 16 MM sound motion picture will be available soon showing the Grid Roller in action on different types of black top jobs, including the job illustrated here. Make arrangements now to see this motion picture at your Caterpillar-Hyster dealer, or write for information to:

**HYSTER COMPANY**

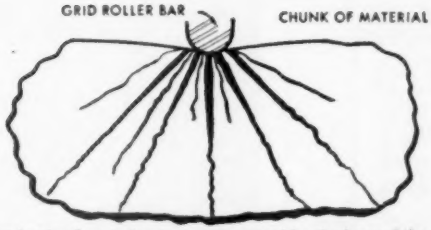
2902-61 N. E. Clackamas Street
Portland 8, Oregon

1802-61 N. Adams Street
Peoria 1, Illinois

THERE'S PROFIT IN HYSTER POWER

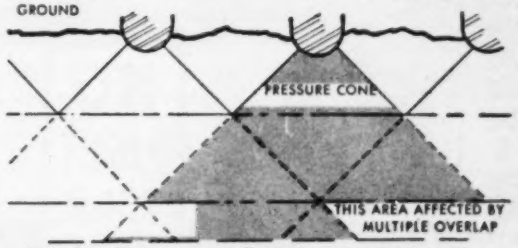
**THE GRID ROLLER PRINCIPLE IS EQUALLY EFFECTIVE FOR:**

**BREAKING UP BLACK TOP**




Impact loads of up to ten tons are exerted by the bars of the Grid Roller on chunks of material, thus immediately breaking piece—or causing fractures which break apart easily on the next pass.

**COMPACTION**




Note how "pressure cones" compact material from the bottom up!

HYSTER® COMPANY • PORTLAND, OREGON; PEORIA, ILLINOIS; NIJMEGEN, THE NETHERLANDS

## New Sanitary Fill Unit Benefits Small Communities

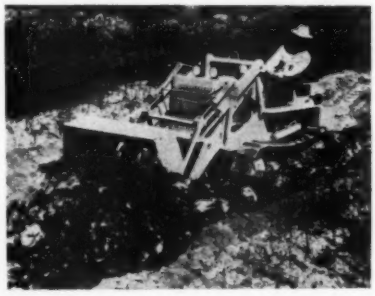
For towns and villages of moderate size, a practical and economical method of garbage disposal has been demonstrated by the Terraload'r, a new product of American Tractor Corp., Churubusco, Ind., manufacturers of agricultural and industrial tractors.

Credited as ideally suited for the landfill method of disposal which permits the combined collections of garbage and rubbish, the Terraload'r will unload refuse from trucks directly into ditches and hollows already extant. If no existing opening is available, the machine can dig a ditch, level and compact the refuse, and cover it over.

According to the manufacturer, the landfill demonstrations of the Terraload'r, staged under the auspices of the United States Health Service, proved the unit advantageous in many respects. Not only did it do away with the unsightly open dump, eliminate insect and rodent breeding ground, and adapt easily to land reclamation projects such as parks, playgrounds, parking lots and airports but it could be operated both as a loader and bulldozer.

The cost of the Terraload'r, say company officials, is well within the budget of the average small town, primarily because the machine may be operated by a truck driver or other civic employee, eliminating additional labor costs.

Further information is available from the manufacturer, or Circle No. 53 on the Post Card in this section.

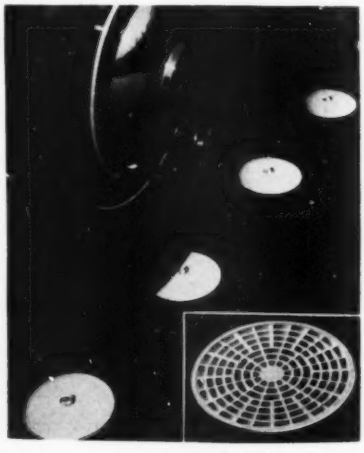


## Five Years of Heavy Traffic on Plastic Markers

Five years and some 55,000,000 vehicles after certain lightweight plastic markers were installed experimentally (in 1948) on the ramp of a main-artery bridge in Portland, Ore., it was found that the concrete around them showed more wear than the resilient plastic. The waffle design of the marker bottoms (see insert in photograph) had etched the concrete to a depth of 3/32 of an inch.

Considering cost as well as durability, the markers showed advantages over the previous painted lines which wore off in one month. Over a 10-year period, the cost would be $1,775 for markers and $4,000 for paint. The plastic markers were produced by Traffic Safety Supply Co., 2700 N. E. Sandy Blvd., Portland 12, Ore., under the trade name Dur-A-Line. They are made of cellulose acetate butyrate Tenite, a product of Eastman Chemical Products, Inc., Kingsport, Tenn. These 4½-in. disks can be quickly installed with a special adhesive and metal pins, and are ready for traffic immediately upon installation.

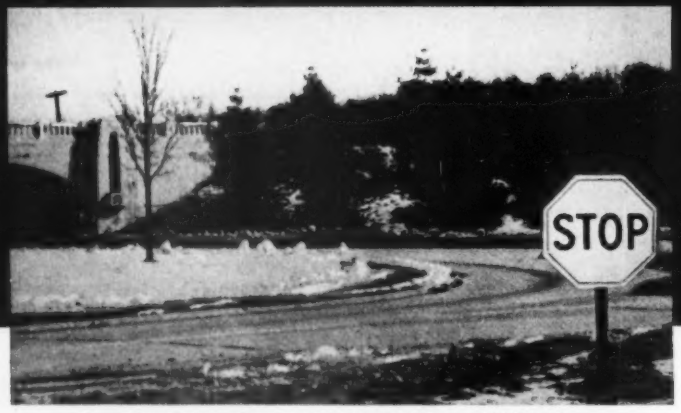
Further details may be obtained from the company, or use the Post Card on the colored page in this section. Circle No. 42.




Nite-Bright

HIGHWAY SIGNS

"BRIGHT BY DAY — BRILLIANT BY NIGHT"

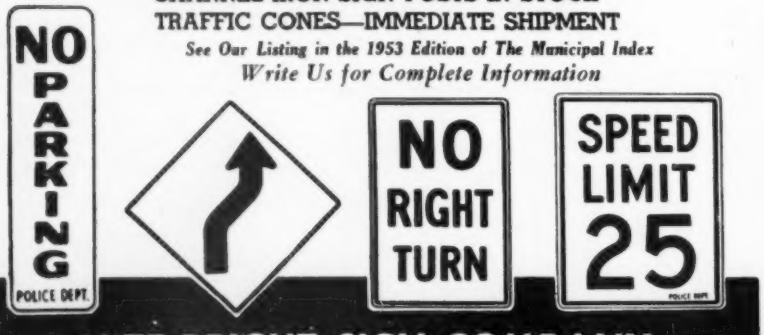



Sport Hill Entrance (Route 59) to Merritt Parkway, Fairfield, Conn.

FOR THE BEST IN TRAFFIC SIGNS (heavy type)
ALUMINUM SIGNS REFLECTORIZED WITH SCOTCHLITE
EMBOSSED STEEL BAKED ENAMEL SIGNS
CHANNEL IRON SIGN POSTS IN STOCK
TRAFFIC CONES—IMMEDIATE SHIPMENT

*See Our Listing in the 1953 Edition of The Municipal Index*

*Write Us for Complete Information*




NITE-BRIGHT SIGN COMPANY
140 JAMES STREET, BRIDGEPORT 4, CONN.

## Felling, Bucking & Limbing, Easier With This Chain Saw

**Operator has no difficulties holding the McCulloch Model 4-30. The entire unit weighs only 30 pounds.**

Rated more than 4-brake-hp in accurate dynometer tests, this modern, new one-man chain saw was designed especially for high-speed felling, bucking and limbing in logging and pulp operations.

Designated the Model 4-30, the saw is said to weigh only 30 pounds complete with a 14-in. chrome-plated blade and chain. Other blades are available up to 36 inches in length, enabling the saw to cut quickly any type of timber up to 5 ft. in diameter.

McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles 45, Calif., manufacturers of the Model 4-30, have combined an aircraft type carburetor with an all-position fuel system, allowing the saw to operate at full power in all positions without any carburetor adjustments.

Among others, important features of this new McCulloch device include an automatic clutch, an automatic-rewind starter, large fuel capacity, a positive chain oiler, high-speed Sabertooth chains and grouped engine controls.

Those desiring further information concerning McCulloch's Model 4-30 chain saw may write the company, or use the Post Card on the colored page in this section. Circle No. 21.

## New Pulverizer Streamlines Leaf Removal

In answer to your city's problem of maintaining landscaped grounds, The Turbo Jet Mfg. Co., 22 Bowman Terrace, Cincinnati 29, Ohio, has devised a power driven leaf pulverizer that gathers and pulverizes fallen leaves, blowing the fine chaff back into the ground as mulch.

In addition to cleaning the leaves out of such difficult-to-reach locations as ivy and myrtle beds, curbs, copings, fence corners and driveways, the new unit, designated Turbo Jet, is simple to operate. Because there are no leaves to be disposed of after raking, one operator is able to handle as much ground as ten men with hand rakes.

Turbo Jet's simple design is based on an efficient direct-driven propeller arrangement which eliminates unnecessary weight and complex assemblies. There are no clutches, belts or chains making maintenance of the unit easy and inexpensive.

For more complete details write to Turbo Jet Co., or Circle No. 44 on the Post Card located on the colored page in this section.

**The operator of this Turbo Jet power leaf mill is able to cover as much ground as 10 men with hand rakes.**


CONCRETE MAINTENANCE AND REPAIR

INTRUSION-PREPAKT

FOR CONCRETE REHABILITATION

- BRIDGE PIERS
- SEWAGE AND WATER TREATMENT PLANTS
- CONCRETE STRUCTURES

FOUNDATION STABILIZATION

- BRIDGE PIERS
- UNDERPINNING, SCOUR CORRECTION
- FOUNDATIONS
- ENGINE BASES
- CAST-IN-PLACE PILES
- GROUTING

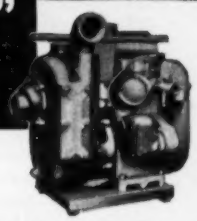
Prepakt Concrete provides exceptional bond to old concrete and extreme resistance to weathering.

Offices in Principal Cities or write . . .

INTRUSION-PREPAKT, INC.

Union Commerce Bldg. • Cleveland 14, O.

Jaeger 60 lb. "Bantam" armored against wear



The only 1½" pump with a replaceable liner plate and stainless steel fitting at point of greatest wear. Engine runs at only 2500 to 3200 rpm instead of the 4200 rpm of pumps that have less capacity. These features mean thousands of extra hours of service. Sure-primes automatically. Pumps 5100 gph. Aluminum model weighs 60 lbs. Powered by 1½ hp. 4-cycle gas engine or ¾ or 1 hp. electric motor. See Bulletin LP-9.

*Model 2 PAF delivers up to 9000 gph. Primes in a few seconds (less than 1 min. at 25 ft.). Aluminum; weighs 105 lbs., saltwater resistant. Replaceable liner plate and stainless steel fitting at point of greatest wear.*

THE JAEGER MACHINE COMPANY 505 Dublin Avenue Columbus 16, Ohio

COMPRESSORS • MIXERS • TRUCK MIXERS • PAVING MACHINERY

## New Track-Type Shovel Offers Service Plus—

The first highly mobile track-type Shovel of two-yard capacity is now available for digging, lifting, carrying and dumping jobs, according to an announcement from Caterpillar Tractor Co., Peoria 8, Ill.

Labeled the No. 6 Shovel, this new mechanism is powered by a 66-drawbar-hp crawler on a non-oscillating track frame. It is an integral unit with the tractor shovel frame bolted and welded at widely separated points on the tractor engine support channels and the transmission housing. Because it has been designed from the ground up, the No. 6 Shovel offers excellent balance and stability.

Rear mounting of the hydraulic system permits better radiator cooling and, combined with the high-seat position, better visibility. The lift cylinders are horizontally mounted above the tracks to avoid the possibility of clogging with dirt. Side-door panels prevent dirt from getting to the engine.

The entire unit is engineered for good frame clearance underneath. A heavy-duty bumper guard supplements the customary radiator guard, while a heavy section cross-bar between the lift arms maintains bucket stability.

Dumping height of the new No. 6 Shovel is 10 ft. 9 in., with a reach of 3 ft. 5 in., insuring dumping of materials in the center of all standard hauling units.

The manufacturer will supply further details on request. Write directly, or turn to the colored page in this section and take advantage of our Post Card. Circle No. 5.

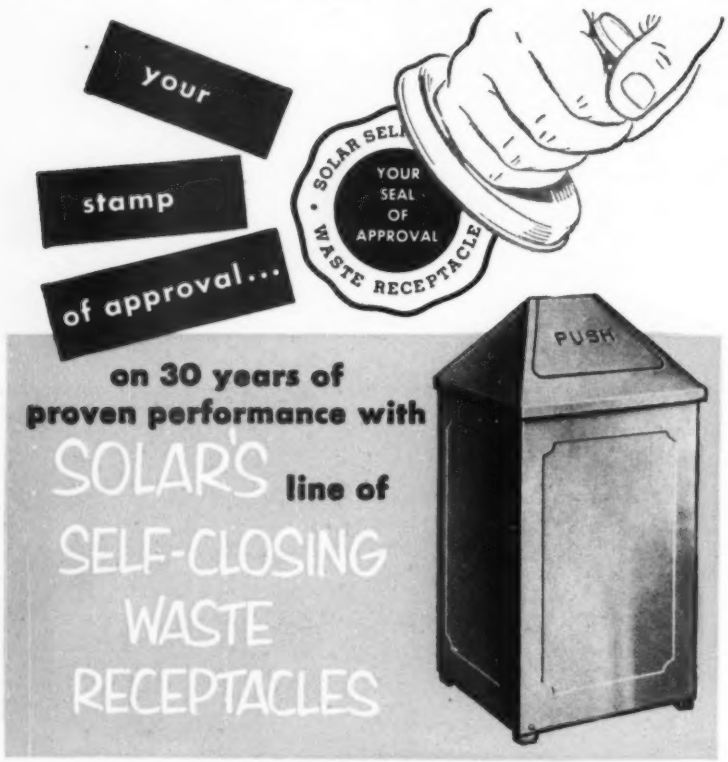
## Air-Powered Saw Cuts Pipe Quickly

With the introduction of a new air-powered pipe saw by The E. H. Wachs Co., 1525 N. Dayton St., Chicago 22, Ill., you can now cut cast iron or steel pipe from 12- to 48-inches in diameter at the rate of 1 inch per minute. Not only, says the manufacturer, is the instrument ideal for cutting gas and petroleum product pipe lines where flame hazards are always imminent, but in addition, it will effect a precision cut so necessary on large water mains.

The Wachs National Pipe Saw is strapped tightly to the pipe by two Silent Type chains that act as a flexible ring gear for positive feed and automatically compensate for pipe swells and irregularities. As it cuts, the saw travels around the pipe making the cut in one complete rotation.

Portable, and weighing 315 pounds, the machine uses a high speed steel milling cutter which leaves clean cut milled edges and requires only 85 pounds of air pressure for operation. Changes in adjustment for different pipe sizes are made by simply setting the guide rollers and altering the two travel-chain lengths. The saw's sealed construction permits cuts to be made under water where ditches are flooded.

Complete data on The Wachs National Pipe Saw is available from the manufacturer on request. Write directly, or use the Post Card on the colored page in this section. Circle No. 32.



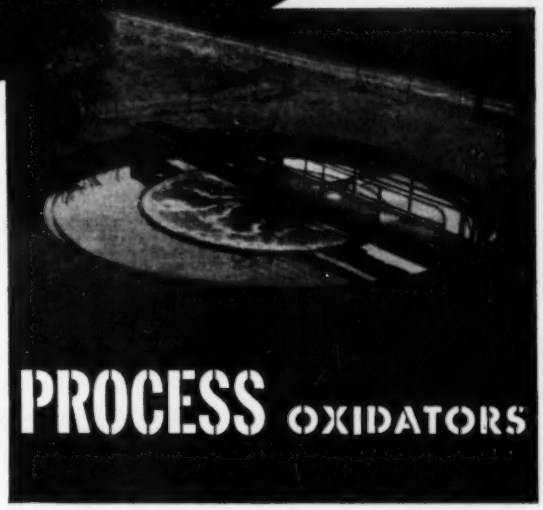

The stamp of approval which you have placed on Solar's line of original self-closing waste receptacles has been acquired through years of producing quality units.

In every conceivable type of location you will find Solar Self-Closing Waste Receptacles. With its exclusive gravity self-closing top, the Solar Receptacle has become a sanitation "must" in schools, hospitals, food processing plants, factories, municipalities and countless other institutions. It has no springs, weights or hinges to get out of order. The very simplicity of the Solar top is our assurance to you of satisfactory service.

Your premises will be neater, cleaner and safer with Solar Self-Closing Waste Receptacles. Write for additional information.

PSC
SOLAR-STURGES Mfg. Div.,
PRESSED STEEL CAR COMPANY, INC.
Melrose Park, Illinois • AUstin 7-1964

FOR *IMPROVED* CLARIFICATION
AND *MODERN* TREATMENT
of sewage and industrial wastes



# Performance proven!

## PROCESS CLARIFIERS AND PROCESS OXIDATORS

As a result of numerous successful installations, more and more consulting engineers are specifying Process Clarifiers and Oxidators. Process Clarifiers are outstanding because of "know how" acquired from many years of experience in the design and operation of sedimentation units in various industries. Every installation of the Process Oxidator proves this revolutionary new sewage treatment process involving aeration, coagulation and sedimentation in one tank gives the results of intermediate treatment at practically the cost of primary treatment.

Send for Bulletin 117 or have one of our specialized engineers give you complete information without obligation. Write to any one of the addresses listed below.

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*NEEDLES, CALIF.
*FORTUNA, CALIF.
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*JOHN DAY, OREGON
*SCOTIA, CALIFORNIA
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*MILWAUKIE, OREGON
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*ADOLPH COORS CO. AND
GOLDEN, COLORADO
*LAGUNA BEACH, CALIFORNIA
*SAN LEANDRO, CALIFORNIA
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**PROCESS ENGINEERS INCORPORATED**

212 SUTTER STREET
SAN FRANCISCO 8, CALIF.

6381 HOLLYWOOD BLVD.
LOS ANGELES 28, CALIF.

REPRESENTATIVES

Southwest . . . . . J. W. DROKE AND ASSOCIATES, P. O. Box 823, Fort Worth, Texas

Rocky Mountain . . . . . DANAN E. KEPNER, 1921 Blake St., Denver 2, Colo.

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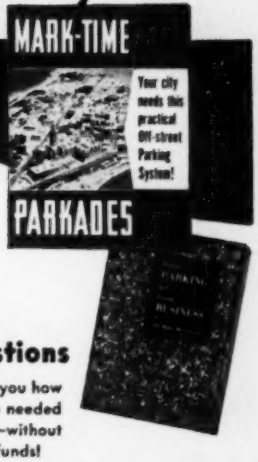


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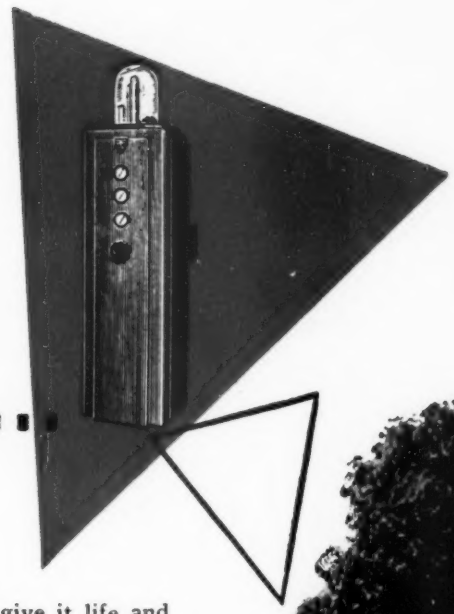

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Basic research, for example, while not necessarily essential to each particular installation, is, nevertheless, the life blood of sound equipment. W&T research developed the Visible Vacuum Principle, residual recording, the Break-Point Process and countless other advances in the art of chlorination. This same research is constantly at work to insure that the W&T Equipment you buy is up-to-date in every respect and will not be outmoded before its time.

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The Roots Of New Water Treatment Techniques Often Lie In W&T Research

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